THE TIMES
Higher Education
SUPPLEMENT

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Defiant student to stay in jail

by Judith Judd

Students at the NELP sit-in.

Mr Andrew Strouthous, 29-year-old president of the North East London Polytechnic's students' union, this week rejected a peace formula and remained in Pentonville prison.

Mr Strouthous was sent to prison ten days ago for refusing to obey an injunction barring him from the polytechnic premises.

On Tuesday the polytechnic agreed to vary the injunction to allow Mr Strouthous into the students' union to carry out his duties. The agreement was reached after negotiations with the National Union of Students, the National Association of Teachers in Further and Higher Education and the National and Local Government Officers' Association. Mr Strouthous would not have access to the rest of the polytechnic without the director's permission.

Representatives of the NUS visited Mr Strouthous in prison and urged him to accept the plan when he appeared in the High Court on Wednesday.

Mr Charles Clarke, president of the NUS, said before the hearing: "If he turns down the proposals he will simply be demonstrating his desire to be a political martyr which will not assist the students whom he represents."

Asked whether the formula represented a climb down Dr George Brosan, the polytechnic's director said: "When matters are put to us by responsible national officers we take cognisance of what they say as distinct from being threatened by inarticulate and idiotic abuse and physical violence."

Mr Tom Thomas, the Nalgo branch secretary at the polytechnic, said the recent occupation of the Barking precinct had caused frustration and stress among staff. One had had a nervous breakdown and one a heart attack.

Students met on Thursday to decide whether to continue their occupations of the West Ham and Barking precinct which began in protest against Mr Strouthous' imprisonment.

Dr Brosan closed the West Ham precinct after the occupation and some students were prevented from sitting their Higher National Diploma examinations.

Mr Strouthous, whose term of office as union president expires on June 30, has been expelled from the polytechnic and it will be up to the governors to decide whether he is readmitted next term.

Seven North East London Polytechnic students arrested during a demonstration outside Pentonville prison were this week bound over to keep the peace.

The students, who face charges including assaulting a policeman and using threatening words, asked for an adjournment of their cases when they appeared at Highbury Magistrates Court, London. They were bound over until the full hearings next month.

The arrests were made last Friday during the demonstration in which nine policemen were injured. A Scotland Yard spokesman said afterwards that some of the 400 students involved in the protest sat down in the road and held up traffic. Violence broke out as policemen tried to remove them.

Elite courses approved for future captains of industry

by Clive Cookson
science correspondent

The University Grants Committee is to encourage four-year engineering courses "of testing quality and with a high standard of entry" at Birmingham University, Imperial College, London, Strathclyde University (with contributions from other Scottish universities) and in Manchester (at the university, institute of technology and business school), Mrs Shirley Williams told the House of Commons this week.

These proposals have been selected from those sent to the UGC in response to a letter circulated to universities in February, offering financial help to set up a handful of elite engineering courses with an element of management studies, to prepare Britain's future industrial leaders.

The Secretary of State said proposals from the universities of Wales, Oxford, Cambridge and Brunel were still being considered.

"It is intended that the first entry to these courses, which will be strictly limited, will be in autumn 1978". Mrs Williams said. "I consider that this development will help to raise the standard of recruitment of management in British manufacturing industry and will set a new objective for able boys and girls still at school."

Professor John Brown, chairman of Imperial College's academic development committee, said the college was planning three different four-year courses, based on electrical, mechanical and chemical engineering, but with a sizable common content of mathematics and "associated studies" (notably ma agement, industrial sociology, dustrial relations, accountancy languages).

Imperial College will not be to afford a significant increase student population, so the in of four-year undergraduates mean a decrease in the annual take level.

In terms of teaching time, first two years of the new courses are likely to include per cent engineering, 27 per cent and 23 per cent management associated studies. The management content will be 30 to 40 per in the last two years, when will spend considerable working on practical pro industry.

"A possible criticism of courses is that we overemphasise research and underemphasise production, sales, industrial and such areas", said Pro Brown. "We are now trying produce a course that holds engineering manager as a rather than the research engineer."

Professor R. N. Haszeldine, principal of UMIST, said his staff working hard on the problem genuinely integrating the engineering and management studies elements—rather than merely mixing them together. He thought would be made possible by extra flexibility given by a year course.

He emphasized that entrants the new Manchester courses need more than just good A le They would be thoroughly by interview to ensure that the right personal qualities.

'Think tank' gives warning on fluctuating numbers

by David Walker

Warnings that the falling birth rate could have serious consequences for universities and polytechnics are made in a report published this week by the Government's Central Policy Review Staff ("Think Tank"). The CPRS report, which uses projections of population growth similar to those in last month's report by the Conference of University Administrators, projects that the number of young people aged 16-24 will increase by over a million by 1985. But by 1996 this will drop dramatically, by nearly two million. On its "very low" projection, numbers of students in higher education will increase by 160,000 between 1975 and 1985 and then fall by 100,000 in the following decade. By 1995 there would be 604,000 students in higher education compared with 540,000 now.

This presents the Government with three options. It can:

- ● allow staffing ratios to improve in the 1990s and accept that buildings and facilities will be under-used;
- ● encourage a higher proportion of the 18-year-old age group to enter higher education in the 1990s in order to boost numbers;
- ● limit provision for the 1980s peak demand.

The report says the first option is wasteful and the second option is more plausible for further education than for higher education, both on grounds of cost and because it is in line with current Government policy.

The third option demands action now. Staff-student ratios would have to be tightened temporarily in the 1980s and the provision of student accommodation would be held constant despite growing numbers.

The CPRS report also spells out the final implications of the decline in birth rate for schools and teachers. Unless more money is forthcoming to improve pupil-teacher ratios or increase in-service training, the projected number of children in the 1980s means that the teacher training places will have to be reduced even further.

Marxist vetting requested

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Mr Miller is concerned about the recent resignations of Mrs Cox and Mr Maurice Mealing, the sociology degree course tutor. The CNAA has validated the course for a further one-year period, a limited timescale because of current uncertainty about the course leadership beyond October.

But a student union spokesman said this week that Mr. Miller's call for an investigation into Marxist bias was totally unexpected. He claimed that the CNAA visiting party had spent "most of the day" considering the allegations of Marxist bias.

The students' open letter maintained that Marxist theories made a significant contribution to the sociology course, but added: "There is a general feeling of unease among third-year students because members of staff have implied that a Marxist orientation in assessment and examination papers will be penalized."

This claim was denied as "ludicrous" by Mrs Cox, who has publicly alleged a Marxist bias in some Open University course units. She claimed in a written reply to students: "The criteria I apply in marking are the normal academic criteria used by those who adhere to academic traditions."

Professor Corgiova, head of the school of humanities and social sciences at Bath University, confirmed this week that the CNAA had been asked to investigate bias in the sociology course at the request of Mr Miller.

Mr Miller told *The THES*: "To my mind there are pretty clear indications of a rather excessive leaning towards Marxist points of view in reading lists and this sort of thing."

Bias at Swansea? Page 3

Fircroft tutors lose appeal at industrial tribunal

The two-year-old dispute at Fircroft College in Birmingham took a new turn this week when an industrial tribunal ruled that three tutors had not been unfairly dismissed.

The three tutors, Mr Harry Newton, Mr Trevor Blackwell and Mr Robert Milson, were made redundant last year after a governors' meeting decided it would not be possible to reopen the college for the current academic year. A fourth, Mr Terry Murphy, was also made redundant, but is now working in Africa.

At the tribunal, the tutors claimed it would have been perfectly simple to reopen the college and make any necessary adjustments while it was functioning normally.

Fircroft College, established as a working man's liberal studies college by the Cadbury family in 1909, and administered by a trust since 1920, was closed down following a dispute between the students and the principal in 1975. This dispute, originally over the principal's refusal to recognize a students' union, developed into a major disagreement about the governance of the college and the syllabus of the courses, and culminated in a student occupation in March 1975.

During the occupation, students accused the principal, Mr A. J. Corfield, of incompetence, and demanded his exclusion from the college. They accused the Cadbury family—Mr Christopher Cadbury is currently chairman of the trustees and the board of governors—of "playing private politics with public money", and said that a college largely funded by the Department of Education and Science and attended by adult trade unionists should be run "more democratically".

Allegations were made at the tribunal that the tutors took part in the students' campaign. This however, was strongly denied by the staff.

In August of that year the Secretary of State for Education set up an inquiry into the dispute under the chairmanship of Mr Andrew Leggatt, QC, and one of the recommendations of the committee had been to dismiss all members of staff. The governors, who considered this report after its publication in April 1976, decided to dismiss the tutors, but to retain the principal.

Mr Cadbury told the tribunal that the governors had decided not to make Mr Corfield redundant "because we wanted to keep the possibility of opening the college at a later date".

A governors' meeting had decided that there was not enough time to reopen the college in September, 1976. The tribunal accepted that there had been insuperable difficulties to reopening the college. This was a genuine redundancy situation, and the respondents had acted perfectly reasonably in treating it as such.

Fircroft College is still being blacked by trades unions. After the tribunal had delivered its verdict, Mr Harry Newton said the tutors would be discussing the possibility of an appeal with their union, the Association of Scientific, Technical and Managerial Staffs.

New chairman for poly directors

Mr David Bethel, director of Leicester Polytechnic, is to be the new vice-chairman and chairman-elect of the Committee of Directors of Polytechnics.

He will succeed the present chairman, Dr Arthur Suddaby, in April, 1978. Mr Bethel went to Leicester as deputy director in 1969 and became director in 1973.

He is chairman of the Council for National Academic Awards committee for art and design. He is the CDP representative on the Council for Educational Technology and the United Kingdom representative on the International Society for Education through Art Council.

Mixed college criticism ends

Opponents of the proposed table for co-residence at Ox University have withdrawn alternative scheme following gregation's postal vote in favour allowing mixed admission where individual colleges chose.

The debate on co-residence due to be reopened in Congregation this week by a resolution from John Lucas, fellow of Merton lage. This called on the conference of colleges to produce a scheme which would phase in co-residence over the next five years. The was to ensure that the interests women's colleges were not jeop dized and to take precautions against a polarization of subjects taught in the colleges.

But Mr Lucas withdrew motion because of the substantial vote in congregation, 744-355, favour.

Leader, page 1

Peacock to head Buckingham

The University College at Buckingham this week announced that Professor Alan Peacock, the economist, from York University, will succeed Professor Max Beloff as principal when he retires from the college in July, 1980.

Professor Peacock will move to Buckingham early next year as professor of economics and principal elect.

NEXT WEEK

Frances Gibb on university tenure

Teacher reorganization: the West Midlands

David Walker on the Centre for Studies in Social Policy

Clive Cookson on the medical curriculum

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Still too many teachers per student, new survey reveals

by Sue Reid

The ratio of students to staff in polytechnics and many colleges of further education still falls short of the norms laid down by the pooling committee five years ago, a new national survey has revealed.

The *findings* of the survey, commissioned by the pooling committee, were distributed to chief education officers in England and Wales this week. They show that while Britain's 30 polytechnics have moved towards reaching the student-staff ratios recommended in 1972, the local authority sector colleges overall have failed to reach the proposed target bands.

Following a major monitoring exercise in 1972 the pooling committee laid down that the student-staff ratio in group one faculties—broadly laboratory or workshop based in nature—should be increased to between 7.5:1 and 8.5:1. In group two faculties, which are more closely related to classroom teaching, the target ratio band should be between 9.2:1 and 10.2:1.

The new survey report gives the results of a monitoring exercise, completed in the spring term of last year, among all the polytechnics, and a sample of 70 colleges of art and colleges of further education offering advanced courses. It reveals that the overall student-staff ratio in polytechnics was 7.5:1 and 8.2:1 in colleges offering 30 per cent advanced work.

When the findings are broken down into the two faculty types, they show that the student-staff ratio in group one faculties in polytechnics was 6.6:1, lower than the suggested norm, and in group two faculties it stood at 9.0:1, nearly on par with the pooling committee recommendations. The levels in 1975 were 6.1:1 (group one) and 8.3:1 (group two).

In further education colleges with 30 per cent or more advanced work the 1976 survey reveals that the staff-student ratio was 7.1:1 (group one) and 9.4:1 (group two).

Details of the average class sizes, and the average lecturer and student hours are included in the findings. A letter sent to local authorities this week by the Association of County Councils and the Association of Metropolitan Authorities, who distributed the survey, maintained: "The pooling committee notes that some progress was made between 1973 and 1976 towards the recommended student-staff ratio norms, particularly in polytechnics.

"But the committee is concerned that the average class sizes have not increased as much as had been hoped and the average student hours still seemed too high, implying overteaching in some areas. Overall it must be noted that the mean student: staff ratios achieved in 1976 generally fall short of the target bands recommended in 1972."

The average class size in polytechnics was 11 (group one) and 11.4 (group two). In the colleges offering 30 per cent or more advanced courses the average class size was 11.2 (group one) and 13.7 (group two).

In the polytechnics the student hours per week (group two) ranged between 27.2 at Central London Polytechnic and 13.1 at North East London Polytechnic, which is currently expanding its degree and diploma courses taken by independent study. The average student hours per week in the polytechnics overall were 23.7 (group one) and 16.7 (group two). The average lecturer hours were 14.3 (group one) and 13.4 (group two).

The pooling committee, which was established by the local education authority associations under the chairmanship of the Department of Education and Science to review pooling educational expenditure arrangements, has recommended that the monitoring of student-staff ratios should now continue on an annual basis.

Summary of Results Calculated from Spring Term Data 1976

	Group 1 Faculties		Group 2 Faculties	
Polytechnics	Student Staff Ratio SSR	Average Student Hours ASH	Student Staff Ratio SSR	Average Student Hours ASH
Birmingham	7.7	17.4	10.6	13.4
Brighton	7.3	25.9	9.2	25.6
Bristol	8.8	23.7	11.7	15.7
Central London	6.5	27.7	7.1	27.2
City of London	5.2	21.4	11.3	18.0
Wales	6.2	25.3	7.9	17.8
Hatfield	7.0	19.4	7.7	14.6
Huddersfield	4.8	19.8	8.6	17.9
Kingston	7.1	29.2	8.6	20.5
Lanchester	6.3	24.9	10.9	15.2
Leeds	6.5	29.1	9.3	17.2
Leicester	7.5	29.8	10.0	21.8
Liverpool	7.2	22.6	10.1	14.3
Manchester	6.6	26.0	9.3	15.4
Middlesex	5.4	26.7	7.7	14.8
Newcastle	6.6	18.3	9.6	14.8
North London	5.5	20.6	7.8	16.1
North Staffordshire	5.8	25.5	9.0	17.8
Oxford	7.1	20.2	9.4	16.5
Plymouth	6.0	23.2	7.0	21.0
Portsmouth	5.8	26.1	8.3	16.9
Sheffield	7.0	27.5	11.0	18.5
South Bank	7.5	25.3	9.0	19.0
Sunderland	5.8	26.2	8.1	20.1
Teesside	7.0	25.0	9.4	16.5
Thames	7.1	24.2	8.4	14.1
Trent	7.3	24.7	9.6	17.8
Wolverhampton	6.8	21.9	10.3	14.6
Preston	4.8	20.6	8.7	12.1
North East London	6.9	13.5	8.9	13.1
Averages	6.6	23.7	9.1	16.7

Polys may get new controls and finance

by Judith Judd

The Oakes committee, set up to consider the management of polytechnics, colleges of education and further education, is considering different means of financial control for institutions with high and low proportions of advanced work.

The committee's meeting last month is understood to have considered a system whereby the finance for institutions with a high proportion of advanced work would come from both central funds and the individual local authority. The system would also include central determination of an institution's role and numbers of students and courses, but greater freedom for the institutions to decide which courses they wish to offer within their allotted role.

Government officials are known to have suggested that such a system could operate in two different ways. One is for the running costs and financial control to be handled centrally, with the local authority paying a fixed sum—according to benefits it received and the part it played in running the institution.

The other is for the financial control to go to the local authority, with most of the running costs being paid by the central body as a fixed contribution. The present discussions are based on the theory that the local authority would pay around 25 per cent.

The committee has to decide whether it favours local or central financial control. Both schemes are seen to have disadvantages. The first would drive a wedge between advanced and non-advanced education, and the second would mean that local authorities were accountable for the management of institutions dependent mainly on central funds.

The new system would replace the present "pooling" arrangements.

The committee is also considering whether a common system of finance for all higher education is possible but the Department of Education and Science is believed to think this impractical.

It is thought that colleges with a low proportion of advanced work are bound to remain under local authority control and two types of management scheme have been suggested.

Under the first, the job of the central body would be to stop course duplication and to make per capita payments for students. Under the second, the national payment might be based on the cost of the course.

For institutions doing mainly advanced work it is very unlikely that the Government would favour the national control of courses implied by these two schemes. This is considered awkward to manage and not particularly economical.

About turn on Coventry merger

A merger between Coventry College of Education and Warwick University should go ahead, Coventry City Council's Education Committee decided this week.

The committee voted to stop the negotiations between the college and Lanchester Polytechnic and to support in principle the merger with the university, provided that suitable terms can be agreed. The decision will be put to the full council on June 14.

The move is the latest in a series of about-turns performed by the council during discussions over the college's future.

Originally it was planned that the college should merge with the university. Then the council, concerned at the loss of its buildings and valuable land to the university, proposed a merger with its polytechnic. The Government gave its guarded approval last autumn and a working party began to draw up an instrument of government.

The merger with the university had been supported by the college staff, the teacher unions and the Conservatives on the council. And when the Conservatives gained power last week—the Labour mayor died and was replaced by a Conservative which swung the evenly-constituted council to Tory control—they halted the merger negotiations with the polytechnic.

They have now decided to reverse them, although some Conservatives fear that the scheme has gone too far.

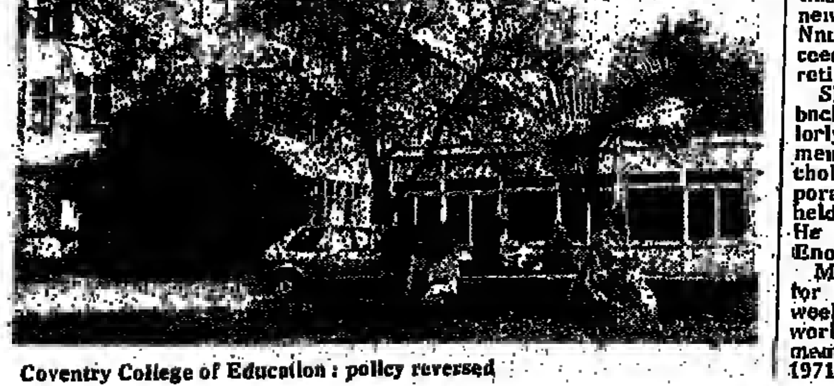
The university is still eager for the merger to take place. Mr John Butterworth, the vice-chancellor, said this week: "For 11 years the university and college have worked together and if we are now permitted to merge, it will enable us to realize many of the joint development plans we had made, which will be in the best interest of teacher training and hence the children of the locality and the nation."

● A working party of councillors has turned down the Government's proposal that the Liverpool College of Higher Education should merge with Liverpool Polytechnic.

The decision of the working party, which was made up of three Liberals, three Conservatives and three Labour party members, will surprise many people in the local authority and in the city where the merger scheme was expected to go through easily.

It had been seen as a way out of the accommodation problems which have beset the polytechnic for several years and was strongly favoured by some local authority officers.

The college, however, argued against it and pointed to its successful recruitment and diversified courses. The working party recommendation will be put to the full council on June 23.



Coventry College of Education: policy reversed

Sir Denis Rooke to head CNAA

Sir Denis Rooke, chairman of the Gas Corporation, is to become the new chairman of the Council for National Academic Awards. He succeeds Sir Michael Clapham, who retires at the end of the year.

Sir Denis has an engineering background and has been particularly concerned with the development of natural gas. He has been chairman of the British Gas Corporation since 1976 and previously held the post of deputy chairman. He is a member of the Offshore Energy Technology Board.

Mrs Williams, Secretary of State for Education and Science, this week paid a tribute to Sir Michael's work for the council, first as a member and as its chairman since 1971.

Contents

AUT Council: reports by Frances Gibb

Voters show will to reject phase three

Members voted overwhelmingly to reject phase three of the pay policy and to consider strike action unless the policy was sufficiently flexible to rectify recognized anomalies completely.

The motion, put by the executive, noted "once again with anger the grave injustice done to AUT members in 1975 when the Government withheld cost-of-living increases allowed to all other public sector employees, thereby forcing university teachers to endure the full rigours of pay restrictions on already depressed salary scales".

Debate was heated, and members divided as to whether the pay policy should be linked with the rectification of the anomaly. Piloted by Dr P. F. Tiley, an executive member from Bath University, however, the executive won the day.

Dr Tiley said the AUT had submitted a pay claim for settling the anomaly from August 1, which would involve increases of 15 to 20 per cent. A further claim for cost-of-living increases for 1976-77 would depend on the pay policy, and if the injustice was settled, the AUT would be prepared to accept the going rate on this.

University teachers were not claiming a back payment, he said. They were not asking for special treatment. The association had always taken a responsible attitude in salary negotiations and had never taken a lead in inflationary claims. In 1973, the AUT had said it would be prepared to accept a further decrease in differentials, provided they were treated the same as other professionals.

The Government's attitude to the AUT was that of a mugger seeing an old man coming down the road and saying: "That's the one", he said. In the 18-month period prior to the introduction of the pay policy, professional civil servants had received an average a 55 per cent increase, polytechnic teachers 65 per cent (and heads of department 75 per cent) plus lump sums of £2,000. In the same period, university teachers had received a 7 per cent increase plus promises.

They had endured a 10 per cent drop in real income when faced with the full rigours of pay restriction, he said.

Professor William Wallace, of the New University of Ulster and a former AUT president, said university teachers had been reasonable for years and it was now the time for others to be reasonable. "We have to go very strongly for rectification of the anomaly on the basis that enough is enough."

Summing up, Mr Laurie Sapper, the general secretary, said that the pay policy and the rectification of the anomaly were inseparable.

AUT president Professor David King and his successor-elect Dr Cecil Wells (left).

Brooding pay debate turns militant

While most of Liverpool throbbed with anticipation about the cup final last week, the Association of University Teachers' summer council meeting brooded on its pay anomaly and grew militant. Predictably, pay was the hottest issue at the two-day conference, with debate stretching to over two hours.

The 200-odd lecturers, filled with a sense of injustice, threw in their strongest card and threatened to reject phase three of the pay policy with possible strike action unless the anomaly was rectified.

Professor David King, in his retiring presidential speech, pointed out that lecturers had now contributed some £120m to cuts in public expenditure in the last two years, about £3,000 to £5,000 each. Pre-empting criticism, he said that lecturers were not asking for back payment to cover this loss. The 20 per cent pay rises would merely settle the anomaly—and it would be wrong to call the demand inflationary.

Generally, there was an air of anxiety about the shortage of money for universities, and its implications for jobs. The cut in the recurrent grant for next year was estimated at 7 to 8 per cent, and particular concern was expressed about postdoctoral researchers unable to obtain posts.

Professor King put a positive interpretation on Mrs Williams's statement that the size of the recurrent grant should not affect the removal of the anomaly; more money would be provided to pay for it.

He also celebrated the value of the university system, which was "in tune with the needs of modern society". It had been nurtured over many generations but could easily be irreparably damaged by Government decisions based on an apparent misconception of the universities' role.

Universities were criticized for concentrating on pure research at the expense of applied, he said. But even if they could be separated, which was doubtful, the fault lay with industry for failing to exploit university discoveries. He called on companies to set up their own research laboratories, so they could participate in discoveries and better understand their implications.

Call for code of practice on lecturers' files

A code of practice on the collection of information on lecturers by universities and the control of access to it, was called for overwhelmingly by delegates.

Strength of feeling on the issue forced the executive to change its recommendation that the resolution be referred to the executive to one that it be accepted.

The motion said the AUT council recognized that university managements might find it necessary in the course of their duties to collect and hold information concerning members of the AUT. It therefore called on the executive to draw up a specimen code of practice for consideration.

The move comes in the wake of recent events at Exeter University, when files were removed during a student occupation of administrative offices and information about lecturers made public. This information, which lecturers did not know existed, included a list of political sympathies.

Dr Mark Blacksell, a geography lecturer at Exeter, said events there had appalled all shades of opinion in universities. People were shocked at the lack of awareness that such information could be collected, on how it could be used or how it could be transmitted from university to university. Obviously such information could be highly prejudicial to career prospects, and he was not convinced that university authorities were aware of the extent of the damage that could be done to individuals.

He added, however, that the existence of the information was the result of careless disorganization, rather than malice.

At present, Dr Blacksell continued, lecturers had no right of access to such information, although employees of both the army and civil service could see as of right all reports written about them.

Dr Margherita Rendel, from the Institute of Education, London, said this applied to all ranks in the army. They could challenge reports on them and ask for corrections to be made. "If this happens in the army", she asked, "surely it can happen in universities?"

Dr L. Palmier, from Bath University, warned that one danger in arguing for no confidential reports was that important decisions were then no longer made on paper. They were made by telephone or in informal discussion. Against this, Dr R. Hyman, from Warwick, argued that at least with comments made by telephone they were not on one's record for one's whole career. Access to such information would provide some redress against inaccurate or unfair comment.

Dr G. Turner, from East Anglia University, said the Exeter motion brought fresh air into what had been a hazy area. He urged the executive to take up its spirit regarding the efficiency bar, following a point made by Dr P. A. Ongley, from Aston, that there were cases where lecturers had been told that the reasons for which they were held at the bar did not concern them.

Job shortage action demanded

Urgent action to cope with [illegible] shortage, particularly for doctoral researchers, was cal[illegible] by delegates.

They supported a motion from Sheffield which noted with [illegible] "the effective redundancy [illegible] ing many postdoctoral re[illegible] staff", and observed that [illegible] past universities have recr[illegible] large proportion of lecturers from the country's pool of doctoral workers.

"With the freezing of lectureships, young academics are presented with appalling prospects equivalent to redundancy". AUT estimates that there [illegible] some 12,000 postdoctoral re[illegible] without jobs.

Dr Stephen Bonyard, [illegible] field, said this particularly [illegible] scientists, because their career structure demanded [illegible] doctoral period. "The Science Research Council, in [illegible] appears oblivious to [illegible] and continues to employ [illegible] able number of postdoc[illegible] searchers with apparent [illegible] to their future career pros[illegible]

He quoted the case of [illegible] postdoctoral researcher [illegible] been continuously employed [illegible] SRC for seven years and [illegible] at the age of 37, is to be [illegible] by a younger postdoctoral [illegible] searcher doing the same [illegible]

He added that as [illegible] number of postdoctoral [illegible] did not complete their [illegible] because they saw no [illegible] Good research could not be [illegible] pleted if lecturers were [illegible] having to look over their [illegible] A whole generation of [illegible] was being lost to univ[illegible] said.

Other motions passed [illegible] the executive to explore the [illegible] bility of short-term [illegible] staff and opposed the "[illegible] policy of appointing only [illegible] lower end of the lectur[illegible]

Cost fears expressed

Fears were expressed whether the universities' [illegible] grant for 1977-78 would be [illegible] ficient to meet lecturers' [illegible] living increases.

Professor David King, [illegible] what he called the "absurd[illegible] the cash limit system" said [illegible] there was a pay policy, [illegible] forecast would allow for [illegible] creases of 10 per cent. The limit would not then be [illegible] cent too short, but 7·8 per [illegible]

Delegates passed a motion instructing the executive to press for a revision of the cash limit system, bearing in mind the Secretary of State's assurance that the Government would be prepared to [illegible] the position if the pace of pay and prices increased generally, or if the paces of those items affecting university spending were substantially higher than allowed for in the [illegible] limit.

They also urged the executive to press for comprehensive changes in the cash limit system, since it [illegible] be used to implement a restrictive pay policy in the public sector while leaving untrammelled large areas of private sector pay.

Lead taken in creative standards policy

The AUT is to take an increasing lead in pressing the Government to adopt a positive and creative policy towards universities and to maintain standards of teaching and research.

These are two points of a five-point executive plan to which delegates agreed. It urged the Government to extend universities opportunity to particular groups such as women, the working class and young immigrants to develop continuing education and to expand further the contribution of universities to society and the economy.

The AUT had submitted a memorandum to the University Grants Committee indicating areas it wanted to see discussed. They included tuition fees, future numbers and the whole question of planning.

It had also suggested talks with the UGC and CVCP on the question of next year's recurrent grant, but the CVCP had declined to have the UGC as participants rather than observers in such a discussion. Now a meeting was to be held to decide whether or not they would have a meeting, he said.

New deputy

Mr John Akker, 34, has been appointed deputy general secretary of the AUT from December this year. He succeeds Mr Fred Garside, who is retiring.

Officers for 1977/8

The Associations's new officers for 1977/78 are: Dr C. F. Wells (Birmingham), president; Professor A. M. Prichard (Nottingham), senior vice-president; Mr J. E. Reilly (Kent), junior vice-president; Professor David King (Liverpool), vice president; Dr R. J. Thomas (Newcastle), vice president; Dr T. G. Halsall (Oxford), honorary treasurer; and Dr F. W. Chattoway (Leeds), additional vice-president.

Administrators' plight reviewed

The plight of university administrators during student sit-ins, [illegible] was an important issue at the [illegible] Conference of University Administrators at Swansea, received [illegible] tion.

Delegates instructed the [illegible] to confirm with the National [illegible] of Students that the association did not condone the disruption of the work of its administrative [illegible] by direct student action.

Dr J. Light, of Queen Mary College, London, referred to the controversial NUS/AUT agreement on procedure during sit-ins, saying that while it was right for the association to agree guide-lines for students sitting in, it should make clear [illegible] students they had no business disrupting administrators.

Governors and students plan NELP inquiry

by Sue Reid

An independent inquiry into the recent dispute between students and management of North East London Polytechnic will start in the next few weeks, Dr George Brosan, director of the college, confirmed this week.

Following the release last Friday of Mr Andrew Strouthous, president of the polytechnic's student union, from Pentonville Prison, Dr Brosan said the inquiry would be set up jointly by governors and students as a matter of urgency.

Mr Strouthous's release came in the wake of an instruction from his own union to abide by a peace formula, and to enter only 13 student union rooms on the college's multi-site campus. He was jailed a fortnight ago for failing to obey an injunction requiring him to keep away from the polytechnic.

The polytechnic management later offered to allow him to return to the college in his capacity as president, provided he agreed to restrict his movements to the union offices. But he refused to give the necessary undertaking.

The meeting of 500 students voted by a two to one majority in favour of Mr Strouthous obeying the peace formula. They also agreed to call off the occupation of college buildings, including Dr Brosan's office, which had been initiated in protest over the imprisonment.

At the hearing at the Royal Courts of Justice in the Strand, Mr Anthony Eaton, counsel for Mr Strouthous, said that the injunction banning Mr Strouthous from the polytechnic had originally been issued to end a sit-in on overseas students' fees.

Mr Strouthous has now said that he intends to apply for reinstatement to his sociology degree course in October. His term of office as president comes to an end on June 30.

A general meeting of students was due to be held at the college on Wednesday. Discussion was expected to include the format of the inquiry and a claim that college identity cards are to be introduced.

A polytechnic spokeswoman said the inquiry body was likely to include "independent" members of the students' union and polytechnic management with a chairman nominated by members. It was expected to report publicly before the end of the academic year in July.

Maths teachers 'must have minimum qualifications'

by Clive Cookson

The Joint Mathematical Council has asked the Department of Education and Science to declare that from 1987 all new mathematics teachers must have minimum qualifications appropriate to the level at which they will teach the subject—and by 1997 all existing mathematics teachers should fulfil these requirements.

Yesterday the council issued a detailed schedule of the qualifications it wants the DES to adopt, "on the basis that all teachers of mathematics should have passed both a course on the teaching of mathematics at the appropriate level, and also a course on mathematics at a level substantially beyond that at which they are teaching".

Every primary school teacher should have at least O level Grade C mathematics or its equivalent, and "a teacher's certificate or BEd degree, including a course on the teaching of mathematics at primary level, with 90 hours of staff-student contact, plus a numeracy test".

Those teaching sixth-form mathematics should have a BEd honours degree with mathematics as the main subject, or a university or CNAA degree with at least one third mathematics. The dispensation that allows mathematics graduates to teach without taking a postgraduate certificate of education should be withdrawn.

The JMC, which represents 15 mathematical bodies, calls its suggested minimum qualifications "modest", but it emphasizes that many teachers do not fulfil them at the moment.

● The Prime Minister said he agreed that all teachers should have O-level mathematics, when he opened new students' accommodation at University College, Cardiff, last Friday.

"On the curriculum, I welcome the widespread view that all pupils should study mathematics, English and at least one science subject until 16. This should give the vast majority of children every opportunity to be both numerate and literate", said Mr Callaghan.

London petition for Commons

The National and Local Government Officers' Association (NALGO) is to petition for changes in London University's private Bill when it comes before the House of Commons next month.

The Bill, which will increase the university's statute-making powers, has already been heard by the House of Lords, when it was unsuccessfully petitioned by the Association of University Teachers.

NALGO, which has a membership of 23 at London University, is seeking changes along the same lines as the AUT, and in particular wants trade union consultation written into the Bill.

It asks that the Bill provides for automatic consultation with trade union interests before making any changes in the university's statutes. Draft statutes for changing the university's constitution are being prepared, and they would come into effect when the Bill is passed.

Secondly, NALGO wants the Bill to provide proper trade union consultation on senate, court and the joint finance and general purposes committee. Thirdly, it wants the Bill to be altered to give less power to convocation, the body of ex-graduates.

A spokesman from NALGO said: "Underlying our concern with industrial democracy is the fact that the trade unions don't seem, so far, to have been taken into account; and we want to ensure that this is done."

The Bill will come before the Commons for its second reading on June 14, when objections may be lodged. The AUT, NALGO and the National Union of Public Employees are hoping that sympathetic MPs will lodge objections which will delay the passage of the Bill and ensure a committee stage. That would give the unions a chance of presenting their cases.

Surrey graduates find the jobs

The proportion of Surrey graduates gaining jobs last year was nearly 17 per cent above the average for British university graduates according to the university's careers advisory service.

In its report for 1975-76, it says that out of 542 first degree students graduating in 1976, 59 per cent had permanent jobs by the end of the year. The average for all universities was just over 42 per cent.

The Surrey figure was 5 per cent more than the previous year. At the same time the number thought to be unemployed by the end of the year was 4.4 per cent, slightly less than the previous year.

The report emphasizes that very few of Surrey's undergraduates are sponsored with a guarantee of employment on graduation. Among postgraduates nearly one third gained their degrees from their places of work. They were "collaborative" students, who had done research under the joint supervision of their employers and the academic staff at the university.

Although prospects for graduates were better than in previous years, the report says, the difficulties of certain graduates from certain departments underlined the need for students to be prepared for sudden changes in job prospects and for developing alternative career plans.

Student leader attacks long vacations

Students at conventional universities and polytechnics have too much free time because of their long vacations, Mr Paul Seligman, president of the students' union at the University College, Buckingham, has claimed.

He told the annual general meeting of Buckingham University Ltd that as an experiment in intense studies the university had proved an unqualified success though the elimination of long vacations had strained some students.

Critics of Buckingham were prone to say that the college was for the rich. Many students were from higher income brackets, but their backgrounds were nevertheless diverse, said Mr Seligman.

He called for measures to increase this diversification. Students of high academic calibre from state schools should be enabled to attend Buckingham through the provision of more funds for scholarships and bursaries, he said.

The results of the college's experimentation in the breadth of studies were less clear, he said. Buckingham would need to keep under review the weight given to supporting subjects, especially in those schools of studies which already had three main subjects, such as law, economics and politics.

Mr Seligman criticized the attitude of some government departments towards the college. They were reluctant to recognize the Buckingham "licence", and therefore denied students the normal graduate routes into the public services.

He added: "It is absurd that the government of a country of the European Community should deny itself the opportunity of recruiting graduates qualified in Community languages who would appear to be ideally suited for the public services."

● The refusal by some government departments to recognize the licence of the University College, Buckingham, was strongly criticized by a joint body of the college's academic and international advisory councils, chaired by Professor Peter Mathias, Chichele Professor of economic history at All Souls College, Oxford.

In a unanimous resolution, earlier this month, the joint body declared itself fully satisfied with the college's academic standards, already monitored for first year examinations by external examiners. They agreed that the equivalence of the college's licence to bachelor's degrees from other institutions was now fully established.

Both the Civil Service Commission and the Ministry of Defence have shown reluctance to discuss the value of the licence, and the Social Science Research Council has refused to offer finance to Buckingham students hoping to go on to postgraduate work. But the Law Society and the Council for Legal Education have recognized the licence as equivalent to traditional degrees.

The joint meeting agreed with the college's view that to re-open discussions with the Council for National Academic Awards to gain external validation of the licences would be "unnecessary and inappropriate".

Bryan Davies column, page 5

First PE professor appointed at Salford

Britain's first professor of physical education is to be Dr Harry Thomason, senior lecturer in physical education at Salford University. Dr Thomason, an authority on sports medicine and applied psychology, will be head of the enlarged department of physical education and recreational science formed by the merger of Loughborough University and Loughborough College of Education.

Sesame to monitor arts therapy

Sesame, the organization concerned with the movement and drama therapy, has set up the Sesame Institute for the Arts in Therapy. It will investigate the need to establish and monitor professional standards for those engaged in arts therapy.

Cocteau goes on show

Picasso and Stravinsky, a drawing by Jean Cocteau, is one of many documents on show at a major exhibition about the artist opening today at the National Book League, Albemarle Street, London. It includes lithographs, ceramics, tapestries, film stills, letters and drawings and will continue until June 24. It will then go to the Sunderland Arts Centre (July 25-August 13), the National Library of Scotland (August 21-September 10), the Bluecoat Gallery, Liverpool (September 17-October 8) and the Birmingham Arts Lab.

Core studies and modules listed in BEC guidelines

The Business Education Council this week issued guidelines, including detailed information on core studies and option modules, to colleges and polytechnics due to offer its courses from September, 1978.

They stress that the new BEC courses have been designed after extensive consultation with business and commercial interests and professional bodies. There has also been close cooperation with the further and higher education system, according to the guidelines.

The booklet, which supplements the council's first policy statement a year ago, maintains that its courses will particularly emphasize the development of skills which will help the employee be a more effective and more satisfied worker. At each level, students will be able to choose a course designed with the particular need of the public sector, financial sector, distribution industries or general business in mind.

BEC says: "All the courses have been designed principally for the 16 to 21 age group although some older students will also wish to study for them. They are based on a common core of six modules studied by all students on any particular course to which are added two option modules for a certificate and six option modules for a diploma".

For each level of award, the core modules will provide a broad base for a range of related business careers, and option modules will frequently be "of specific vocational relevance", claims the booklet.

Courses leading to the new BEC awards will replace the existing certificate in office studies, the general certificate in distribution and the national distribution certificate from September 1978. They will also replace the ordinary and higher national diplomas and certificates in business studies and the ordinary national certificate in public administration. In those cases the existing and new awards will run in the college year 1978-79, but from September, 1979 it is intended that all new enrolments will be to the BEC courses.

The booklet says: "At all levels the students will have to achieve a defined level of attainment in oral and written competence in clear jargon-free English and a proficiency in the skills and application of logical and numerate thought. These, together with the BEC central themes of 'people and money', are from the employers' point of view essential ingredients in any sound education for business."

The BEC general certificate and diploma courses will cater for students aged 16 or over with fewer than four O levels, and core studies at this level will include communications, human relations, and business calculations.

Students with four or more O-level passes or those who have passed the BEC general certificate or diploma with credit will take the BEC national certificate and diploma programmes. Core studies for all students will include communications, human relations, quantitative and accounting methods and business organization in its legal, social and political environment.

The BEC higher national certificates and diplomas, to replace the existing HND and HNC courses, will provide for students with one or more A levels or a BEC national certificate or diploma. They have been designed for students wanting a vocational business education and they will qualify for mandatory grants.

DES paper gives 1981 view of FE

The Department of Education and Science has published a "background paper" to the deliberations of the Oakes committee on the management of advanced further education in the local authority sector.

The paper contains the department's view of further education in 1981. The figure for the number of institutions doing advanced work in the 1980s is only a guide since the final list of college closures has not yet been published.

According to the DES there will be about 100 institutions specializing in degree work, Higher National Diplomas and advanced professional qualifications. A further 300 colleges will be devoting more than a third of their time to this level which includes DipHE and teacher training work.

The figures for polytechnic student numbers in the table include students at colleges of education expected to merge with polytechnics by 1981.

The paper makes special mention of a group of colleges the management of which will provide the Oakes committee with headaches. These are the "independent colleges" operating under the aegis of charitable trusts or non-profit making companies but receiving part or all of their recurrent funds from local authorities. There are 40 such colleges with about 47,000 students.

The paper also emphasizes the diversity between and, indeed, within, colleges. It notes, for example, that the cost of a student in polytechnics ranges from £1,100 to £2,350 for arts students and from £1,550 to £3,600 for science and technology students.

Special mention is made of the grievance—often voiced by polytechnic staff—concerning the great variety of agencies to which they have to apply for approval of courses. The paper notes that advanced courses have to be approved by the regional advisory councils, and by the Council for National Academic Awards. The CNAA may lay down certain requirements on staffing or facilities which could have a direct impact on the institution's need for management. Yet the CNAA has no financial responsibilities.

Report on Education No 90: *The Management of Non-University Higher Education*, available free from Room 1/27 DES, Elizabeth House, York Road, London SE1 7PH.

Expected pattern of institutions 1981 Type	No.	Student numbers 1975/76 Full time	Sandwich	Part-time	Evening
Polytechnics	30	78,153	30,223	37,923	16,264
Other institutions					
(i) with over 90 per cent advanced work					
Former colleges of education, free-standing or amalgamated with other colleges	57	53,575	249	2,165	966
Specialist colleges (such as Music or Agriculture)	7	3,200	—	41	49
Other colleges	3	604	—	19	—
(ii) with between 30 per cent and 90 per cent advanced work					
Former colleges of education amalgamated with other colleges	18	17,885	2,029	9,654	4,318
Specialist colleges	25	4,238	814	40	—
Other colleges	14	4,876	1,475	6,847	3,417
(iii) with less than 30 per cent advanced work					
Former colleges of education amalgamated with other colleges	2	1,322	10	668	385
Specialist colleges	7	51	142	—	4
Other colleges:					
with full-time or sandwich students	96	5,085	3,188	20,028	8,191
with no full-time or sandwich students	159	—	—	10,285	4,436
Total	418	168,989	38,130	87,670	38,030

Oakes committee told to avoid big changes

The Oakes committee, investigating local authority control of the polytechnics and colleges, was advised last week to avoid "massive changes" and to stick to modifying the existing system.

Mr Eric Robinson, principal of Bradford College, said at Newcastle Polytechnic that the "seamless robe" of educational control by the local authorities ought not to be torn. It simply needed gussets and zip fasteners.

He recommended that the big further education colleges come under the authority of joint committees of local authorities. These would give small towns and rural areas a stake alongside the big metropolitan authorities which at present controlled most of the polytechnics and important colleges of further education.

Mr Robinson, a critic of polytechnics and universities, attacked the terms of reference of the committee set up under the chairmanship of Mr Oakes, Minister overseeing higher education.

He said: "It is regrettable that the terms of reference of the Oakes committee are limited to higher education because it can look at only part of the problem. And, worse than that, the demarcation of higher education is highly questionable and prejudges one of the most important questions: namely, whether or not the education of the intelligentsia should be considered quite separately from the education of ordinary people."

Mr Robinson dismissed much of the debate in recent years over how far local authorities should control polytechnics. It was mostly petty bickering and wasteful conflict. Education officers and academics would do well to lay down the sabre and lay in stocks of midnight oil, he added.

He also warned that regional planning of higher education could only take place within the framework of national planning. It was in the area of national planning that the Oakes committee might expend some of its ammunition.

Training cooperation would end 16-19 fragmentation

Education and training agencies should cooperate more closely to end the fragmentation in provision of job opportunities for 16 to 19-year-olds, says the National Association for Teachers in Further and Higher Education.

In a draft policy statement to go before its national council meeting on July 2, the association says the present response of the agencies to employment among young people is meagre and piecemeal, despite the efforts of the Manpower Services Commission.

The association believes that a radical change in the boundaries of Government departments is needed if there is to be a single-minded attack on the problem.

The statement calls for the coordination of policy and action. "It is a severe hindrance to any study of the age group as a whole that no statistical overview is taken by the Government."

It also suggests that young people under 18 who are not employed should all be paid the same, to provide incentives to carry on with training.

The association supports the need for manpower planning but believes vocational preparation should be general rather than specific to allow for planning errors.

Because of the expected reduction in the age group in the 1980s "it may be necessary to concentrate specialized provision in strong centres and to adopt deliberate measures to stimulate demand for formal programmes of vocational preparation".

This should help to preserve and extend the range of education and training opportunities.

The association also calls for a reappraisal of the present official policy which associates further education with young people who are receiving at least 12 months' industrial training.

This 12-month criterion is in need of drastic reduction, it says, because of the many young people in employment who are left to fend for themselves.

● Mr Stan Broadbridge, the NATFHE's general secretary, told students at Hatfield Polytechnic last week that the maintenance of the Robbins principle of access to higher education was absolutely essential, whatever the outcome of discussions about the management of higher education.

OU gets £7,800 grant for Welsh guidance service

The Manpower Services Commission has awarded a £7,800 grant to the Open University for a pilot educational guidance service in Wales.

It will offer information on all forms of full and part-time adult education and will be based in Cardiff. Initially the service will be limited to South Glamorgan but is expected eventually to cover the whole of Wales.

The grant for the pilot scheme, which will last for seven months, is being made to the Open University in the first instance but the service will become completely independent of the university if it proves viable.

Mr Stephen Murgatroyd, an Open University research fellow, and Mr Ray Woolfe, staff tutor in educational studies, will direct the pilot project in collaboration with other adult educationists in Wales.

Announcing the development this week, Dr Harford Williams, director of the Open University in Wales, said: "Many initiatives are being taken throughout the United Kingdom in collaboration with other providers to ensure that the adult education sector continues to develop despite the economic circumstances.

"The pilot service wants to try to identify some of the unmet educational needs of particular groups in the community. We are specially interested in the needs of the unemployed and the disabled."

● Open University students in the north-east will have the chance to win £100 to help meet the cost of their studies. The Newcastle *Journal*, the regional morning paper in Newcastle upon Tyne, is offering the prize to the winner of an essay competition. The competition is open to foundation level Open University students living in Cumbria, Northumberland, Tyne and Wear, Durham and Cleveland.

Daniel Bell detects signs of new religious revival

by David Walker

Signs of a widespread religious revival were detected by the leading American sociologist, Professor Daniel Bell, when he delivered the L. T. Hobhouse Memorial Lecture at the London School of Economics last week.

Professor Bell, on a year's sabbatical in Britain, criticized traditional sociological theories of religion and ventured a number of predictions. They included the judgment that fundamentalist religion, emphasizing morality was on the upsurge.

In the United States, he said, the largest growing voluntary associations had been the fundamentalist churches to which farmers, lower middle class groups and small-town artisans flocked. To some extent this movement belonged to the "silent majority" who decried abortion, sexual freedom and the abandonment of traditional morality.

But the new religious interest did not belong just to the lower classes. Among professionals and intellectuals he detected a religious awareness stemming from discontent with central government, bureaucracy and big organizations. People were returning to the "private sphere" of life—family, church, neighbourhood and voluntary associations. There was an increased sense of the need to care for one's neighbours.

Professor Bell, his paper studded with classical allusions and wide references to European social thought, put the point this way: "The mediating institutions, centred as they will be on the idea of caring, resurrect the idea of caritas, one of the oldest sources of human attachments, a form of love that has been crushed between rationalized eros and profaned agape, and superseded by the welfare state. They may arise, to use an older theological term in the koinonia, the primary groups where people live and work."

Daniel Bell

A third impulse behind the gence of religion was disc the drabness and dry, quality of modern life wanted ceremonial, pomp and would seek them in

Betraying the fact that he of the few sociologists who ten verse, Professor Bell des the sense of drabness.

"When there are few time mark the turns in the wheel of if all events become the same un ceremony to make the tions, when one marries in ord dress, or receives a degree wi a robe, or buries one's dead w the tearing of cloth, then life comes grey on grey, and no the splashiness of the psych cent pop art can hide their ness when the morning breaks"

He ended by arguing that in the West and, perhaps inc ingly, the East, were groping new vocabulary. Its key wo limits—a limit to growth, to struction of the environm arms, to torture, and to hubr

Rabbi refusal deplored

Salford University has issued a statement deploring the decision of the students' union to refuse a rabbi the right to address the university's Jewish society.

A statement from the Rt Rev Edward Wickham, chairman of the council, and Mr J. H. Horlock, the vice-chancellor, said the university would continue to make other facilities available to speakers excluded from the union.

The students' union has passed a motion that Zionism is racism. It has a policy of not inviting racist speakers and it was on these grounds that the rabbi was prevented from speaking.

The statement from the university said: "A university is nothing if it is not a place where free discussion of even the most difficult and controversial issues can take place." Discussions with the students' union are continuing in an attempt to resolve the problem.

Mr Alan Elsner, field officer for the Union of Jewish Students' said this week that the statement was "whitewash".

Small drop i poly's teache

The percentage of Lanchester technic students entering training dropped by only one cent last year despite the culties of obtaining teaching

This figure is given in the an report of the polytechnic's Ca and Appointments Service says it is "a little surprising the numbers decreased only 11 to 10 per cent.

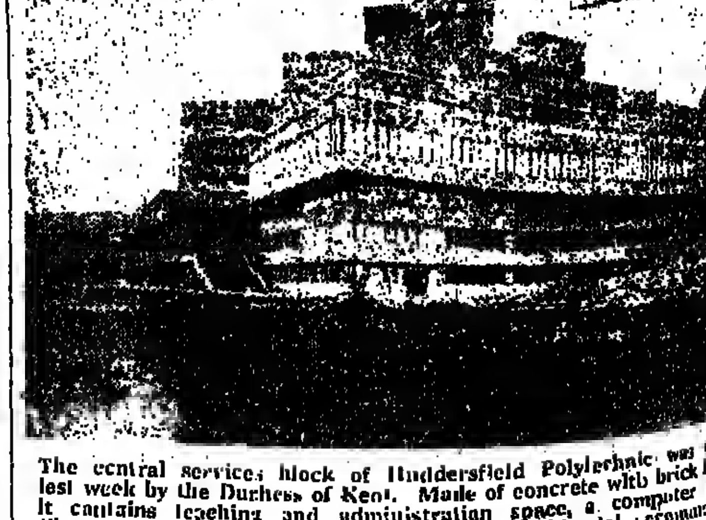
Overall, the job pattern of gr uates leaving the polytechnic sh little change from last year.

It appears, says the report, th the percentage of those ente employment rose from 57 per c in 1975 to 61 per cent in 19

Two groups of students who employed mainly in public serv urban and regional planners a civil engineers, faced much grea employment difficulties.

The demand for graduates fro industry and commerce remain relatively unchanged. The figu was 72 per cent compared wi 67 per cent in the previous yea There was a small decrease in th number entering public service.

New block at Huddersfield



The central services block of Huddersfield Polytechnic was last week by the Duchess of Kent. Made of concrete with brick It contains teaching and administration space, a computer library, catering and exhibition areas and residential accommod

Don's diary

Santa Cruz

My view of California had for years consisted of a mixture of Puccini's *Girl of the Golden West* and the Beach Boys—eked out by memories of a summer month in 1968 which seems in retrospect to have been entirely spent plunging up and down the streets of San Francisco in a borrowed Chrysler New Yorker. It was one of those models with a bonnet like a flight deck and a boot like a Jules Verne spaceship's rear end; it was not the kind of thing you threw around like Bullitt's Mustang. The excitement it generated was more like sailing an aircraft carrier in a typhoon—the Pacific used to heave into view and then vanish behind the flight deck as you hauled and tugged in an effort to avoid crushing cable cars and invisible Volkswagens.

New Year's Day 1977—cold, wet and windy, as we drove down the coast to Santa Cruz—came as a bit of a shock, therefore. It is true that I had been told a winter quarter at the University of California at Santa Cruz might not be the way to acquire a golden tan; what I had forgotten was how uninhabited much of California still is, and how rapidly it can induce the sensation that one is driving into something with the amenities of Dartmoor, with a wife and a tiny baby to reproach one for risking their lives.

Next day the rain stopped, the Pacific sparkled, I met my colleagues in the politics department, and signed up for three months in the Earthly Paradise. It is hard to exaggerate the beauties of the Santa Cruz campus; set in a redwood forest, 600 feet above Monterey Bay. The architecture is not marvellous, *but the* ground rules—nothing higher than the surrounding redwoods, that building to be preferred which requires fewest trees to be cut down—mean that it does not shriek at the surroundings which are ravishing.

The university is very conscious of this, as, indeed, is everyone in the area. The local newspaper's magazine section is called "Tree 'n' Sea Living"; the scenic drive signposted for summer visitors is likewise the Tree 'n' Sea route. Whether I could supply a Tree 'n' Sea Machiavelli, Hobbes, Locke and Rousseau was another thing entirely—Voltaire may have thought Rousseau was urging us to go back to the forest, but Rousseau himself always denied it, and I was pretty sure that he would have spoken nothing but ill of surfing.

Me-ism

On the whole, of course, the influence of the place's setting was not as direct as this—though such things as the students' wish to credit Marx with ecological concerns he never displayed in his lifetime did suggest a direct transfer of interests. Where it did emerge was an intellectual style, and an urge to ask different questions from those you would expect elsewhere. It was not so much California laid back—though that no doubt provided a basis—as a determinedly personal approach to the so-called great books.

All my students hated Hobbes, for instance, on the grounds that he and they seemed to share no feelings in common; the test for intellectual quality, political insight, philosophical depth, was what it did for you. The view that American culture in general has succumbed to "me-ism" is a common one, provoked by every new Updike novel.

The Santa Cruz variant is the [illegible] one. Although you are in as ficial a setting as a university, you are closer to Nature than you be in Los Angeles or San cisco. When I felt irritated with the place, I thought I had strayed into a luxurious refugee camp, where the young had fled the city in search of their true selves; you do not get irritated, it is a marvellous place to think for yourself in peace and quiet.

In intention, Santa Cruz sets out to be a Californian version of an English new university. It was Clark Kerr's last contribution to high priced higher education—it was to be collegiate, and the first provosts of its colleges were almost invariably Englishmen. But, characteristically, it was to have 27 colleges of 1,000 students a piece; it has now got 6,000 students and is not expected to grow much bigger for some time.

It scatters its students up and down the hillsides in a place with no real centre—no Sproul Plaza as some of my students said, and therefore none of the political excitement of Berkeley. Unlike Haussmann, who opened up Paris for the professional soldiery to keep the mobs in order, the Kerr principles of planning would make it physically complicated to bring enough volatile material together to generate a good big bang.

That impression may well be residual paranoia. For, most of what was intended made it impossible for anyone in the administration to get much of an intellectual or organizational grip on the young. In particular, there was an emphasis on individual teaching, individual planning of tutorial courses, and on elaborate written assessments of student progress, all of which meant that it would be something of a fluke if half a dozen students ended up with identical programmes.

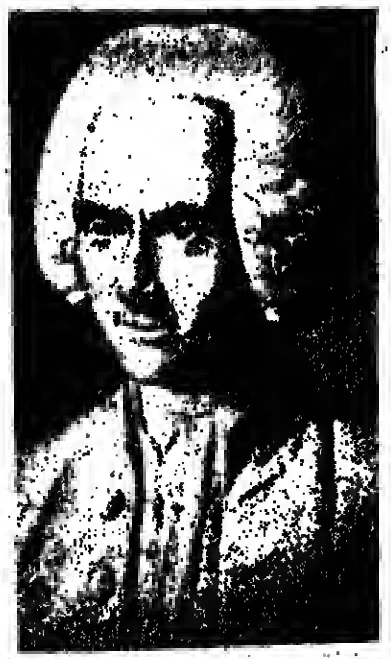
I never did work out how they expected to run a semi-tutorial system on American staffing ratios—but in the mid-1960s it looked in so many areas as if California was where our future was coming from, that they no doubt reckoned that money, technology and hordes of willing graduate students would solve all problems.

As with the Sussex University it very largely worked. My grasp of the basic elements of American education was never good enough to appreciate just what SAT scores represented, but for a long time the SAT scores of Santa Cruz students were streets ahead of all others in the state.

The students overwhelmingly came from professional and academic backgrounds; and they seem frequently to have been a perfect pain, in exactly the same way as their English contemporaries. Students who insist that the necessity of examining all one's presuppositions means that a course cannot start until we know why we meet in a seminar room, why we meet round a table, why we wear clothes and so on, do become a pain.

On the other hand, there is no cause for complaint since we brought it on ourselves; Santa Cruz set up one of its colleges as a place to study the counter culture and its ways—it became known as "touchey-feeley" college on account of its enthusiasm for interviewing candidates for jobs in hand-holding contact groups.

But colleagues who had found it all a bit much were by this spring complaining that the present generation of docile, career-oriented students, heading for law school and the rest, were altogether too quiet. I got the impression that all sorts of middle-aged people had come to terms with a generation reared on Herbert Marcuse and Norman O. Brown, and now felt let down by the conservatism of their successors.



Taking Rousseau (left) to California.

At odds

The University of California is, as ever, at odds with the governor. Having got through the Reagan years, when it was accused of pandering to long-haired, foul-mouthed revolutionaries, it is now in the disagreeable situation of being attacked by his successor, Jerry Brown, for its allegiance to orthodox standards. Against the political hostility of a Jesuit-trained, self-proclaimed Zen Buddhist and simple-lifer, it is no use explaining that your students work hard, learn a lot and go on to get decent jobs.

So much the worse for them and you, when you are charged with complicity in a system which does not yield whatever it is that the governor wants for the world. (I do not think I am alone in having no idea what that is; the citizenry of California gain little to go on beyond faintly mystical appeals to scale down their desires.)

On mundane matters like pay, university teachers come under the Buddhist ban; since they get so much "psychic income", they do not need dollars too. No doubt the observation that you cannot buy a house with psychic income would be met with the reply that you should repress the urge to surround yourself with walls and a roof.

Still, for anyone on the salary of a full professor, poverty is some way off. Indeed, when the three months were up I was still wondering why I was happy to get back to half the pay, twice the teaching, flat inland countryside and drizzle—I do not wonder why I regret asparagus for eight months of the year at 20p a pound, drinkable wine at 75p a bottle, and the sheer emptiness of much of the landscape.

The self-deluding view, of course, amounts to patting yourself on the back and murmuring "no pearls without grit", as if the drearier aspects of English life necessarily lay down the materials for stunning intellectual activity. You do not need great reserves of modesty to hit that one on the head—just pick your own discipline and count the leading figures in it who live on the West Coast.

My own inclination is to think that most of the English and a great many East Coast Americans are not equipped to be hedonists; actually faced with the prospect of pleasure, they begin to think of the elaborate defences against suffering they have spent their lives building up, and cannot imagine living without them. Even among the inhabitants of California there remains a good deal of ambivalence; the well-known footlooseness of the West becomes a sort of moral excuse—"I am really a New Yorker" they say, after 25 years exile, as if to apologize for remaining in the Garden of Eden when the angel with a flaming sword had made sure the rest of us were fighting it out in the real world, and to suggest they would be with us again quite soon.

Alan Ryan

The author is fellow of New College, Oxford.

Buckingham's challenge to the status quo

Bryan Davies

"The College must be seen as something of a triumph of faith over probability", wrote Max Beloff, principal of the University College of Buckingham, appropriately enough, in the most recent version of the Black Papers. Similar faith presumably moved Mrs Thatcher to open the college officially a few months ago. Scarcely surprising, therefore, that Mr Keith Hampson, Conservative spokesman on education, could contain himself no longer before pronouncing that a Tory government would recognize the Buckingham "licence" as the equivalent of a university degree. With dogma at the driving wheel presumably reason must rest content with a back seat.

For the vast majority of us who until recently have regarded the evolution of the college as a somewhat eccentric sideshow, this commitment of the Tories raises a number of interesting questions. Professor Beloff, after all, describes his creation as a pilot plan. It represents the radical right's determination to challenge university provision under the aegis of the University Grants Committee.

The success of the experiment depends upon widespread recognition presumably based on educational criteria rather than political faith. This is perhaps just as well, for political principle is not pursued with that degree of vigour one might expect from so distinguished an exponent as Professor Beloff.

Although the prospectus states that the fees are calculated on the basis of the real economic costs of the education provided, assistance from the state is not entirely foregone. The college may be an exercise in free enterprise but it has, of course, ensured for itself the tangible benefits of charitable status.

As a recent House of Commons report amply demonstrated, this charitable status provides for an educational venture, a baudy cushion against the pressures of the free market even if the beneficiaries scarcely fall into the category of the needy.

Nevertheless, next year's students will face fees of £2,000. This may appear to create rather an exclusive student body on which to establish an experiment in higher education, but as Professor Beloff so disarmingly puts it, "it is a vulgar illusion that the children of the well to do are likely to be less intelligent than the children of the less well off".

Some of us may be forgiven for believing that the more prevalent and potent illusion in our society is based upon the exact contrary proposition. As Sir Douglas Allen put it when explaining the continuing predominance of the public schools in the higher ranks of the Civil Service, "talents are inherited and talented parents are wealthy enough to send their children to public schools."

The other distinguishing feature of the student body is that a number are without the two A-level qualifications insisted upon by the educational system as a whole. If the aim of the pilot project is to prove that such students can reach degree standard if properly taught then that is an aim which would commend itself to many.

There may, however, be some surprise at the sudden conversion of Conservative educationists to this belief. Only a short while ago precisely this battle raged over entry standards for the Diploma in Higher Education, a qualification clearly defined as below degree status, but the two A-level requirement was maintained. The Secretary of State at the time was Margaret Thatcher.

Apparently unaware of the significance of this breach of Conservative positions in the recent past, and content to accept students rejected elsewhere, Professor Beloff still condemns the "high price in quality we have paid for the form educational expansion has taken in this country in the last quarter century". Of course, that is not quite the same as the statement "more means worse" but if the college is meant to be an alternative to existing provision, there appears to be an obligation to compete in precisely the same student market rather than extend the categories of the eligible in quite the way it does.

Presumably some of these difficulties are overcome by Buckingham's commitment to "rehabilitate teaching". This appears to be most amply demonstrated by the fact that the course is crammed into two years of 40 weeks' tuition rather than three years of 25 to 30 weeks.

Enthusiastic acceptance of this formula by Conservative educationists would appear to be a weapon to cut higher education costs "at a stroke". One might be forgiven for believing that perhaps such a proposition ought to be part of a carefully developed policy designed to meet the well-known arguments against two-year degree courses rather than mere endorsement of Buckingham's credentials.

Moreover, with only 11 full-time staff and 80 students engaged in such intensive courses one may pause to wonder whether Professor Beloff has dropped the research role of higher education altogether. The answer may, of course, be that the Buckingham experiment is to be considered in its uniqueness—private enterprise creaming the market for student fees while publicly supported institutions provide the training, research and development—a model not altogether unknown in the health service.

The range of awkward questions posed by the Buckingham experiment is not wholly exhausted in the organization of its courses and the nature of its recruitment. The educational content of the courses on offer demonstrate that the springs of right wing radicalism soon run dry. Student demand for law courses runs high and the profession's educational demands are eminently predictable.

While others in the wake of the Ormrod report have frequently dashed themselves against the rocks of the legal profession's unwillingness to consider educational change, "experimental" Buckingham plays safe. Not surprisingly those values which the Law Society holds in low regard, breadth of educational experience, the maturation of the educated mind over a period of time in association with students pursuing different disciplines, are the ones for which Buckingham similarly makes scant provision.

Can the whole affair be dismissed as the plaything of the privileged and the eccentric, a finishing school for those wealthy enough to pay high fees while not possessing the qualifications to gain entry into the mainstream of higher education? This has certainly been the response thus far of the majority concerned with the development of higher education in this country.

Nevertheless, one suspects that the college was never created to blush unseen in the depths of southern England. Far from wasting its sweetness, Buckingham was created to challenge the present organization of higher education in this country. It will do so in all areas where its students may seek employment. The professions have already been breached and several universities are prepared to recognize its licence holders as suitable for postgraduate work. Three local authorities are considering discretionary awards for its students.

Thus far government departments and the research councils have refused this recognition. Nor can the Department of Education and Science yield unless it proposes to challenge the judgment of the Council for National Academic Awards that Buckingham's proposals do not satisfy degree criteria.

Yet the verdict of the CNAA, a body created under the auspices of a Conservative Government more than 12 years ago precisely to fulfil the function of monitoring the standards of degree proposals in institutions without university status, appears to be set at naught by the present Conservative establishment. While they may allow educational judgment to fall prey to political prejudices—the rest of us ought to be on our guard.

NOTICE BOARD

Chairs

Professor David Johnston, currently professor of surgery at Bristol University, has been appointed to the chair of surgery (Leeds General Infirmary) and the headship of the department of surgery at Leeds University with effect from October 1. He succeeds Professor J. C. Goligher who has retired.

Professor Michael Bromwich, at present professor of accountancy at UWIST, has been appointed professor of finance and accounting at Reading University with effect from September 1.

Professor John R. Wilkie, at present professor of German at Leeds University, has been appointed to the chair of German at Aberdeen University with effect from January 1, 1978. He will succeed Professor Witte who is to retire this September.

Dr G. R. Sagar of the school of plant biology in the University College of North Wales, Bangor, has been promoted to the chair of agricultural botany at the school.

Mr M. F. Smith, reader in the department of classics, University College of North Wales, Bangor, has been promoted to a personal chair in the department.

Dr Brian W. Barry, formerly reader in pharmacy at Portsmouth Polytechnic, has been appointed to the new chair of pharmaceutical technology at the University of Bradford.

Dr R. M. Watson, senior lecturer in prosthetic dentistry at King's College Hospital Dental School, has been appointed to the chair of dental prosthetics at King's College Hospital Medical School from October 1.

Dr N. E. Waters has been awarded the title of professor of physical sciences in relation to dentistry in respect of his post at the Royal Dental Hospital and London School of Dental Surgery.

Honorary degrees

Manchester

LLD: Mr W. A. Downward; The Rt Hon Lord Justice Scarman.
DLitt: Professor Ronald Peacock; Professor Robert-Leon Wagner.
DSc: Mr G. N. Hounsfield; Professor Vladimir Prelog.
DD: Professor Wolfhart Pannenberg.

Newcastle

DCL: Ernest Marsden Bettenson, registrar of Newcastle University from 1963 until his retirement in 1976; Pauline Dower, chairman of the standing committee on all voluntary services in Yorkshire, Northumberland, Durham and Cumberland; Russell George Mawby, president of the W. K. Kellogg Foundation.
DSc: Thomas Harold Flowers, for his work in electronics; Ewen M'Ewen, vice-chairman (engineering), Joseph Lucas Ltd, since 1967.
DLitt: Sir Richard (William) Southern, president, St John's College, Oxford, since 1969.
MA: Henry Russell Robinson, assistant keeper in charge of Graeco-Roman, mediaeval, Renaissance and oriental arms and armour in the Armouries of H.M. Tower of London.

Ulster

DSc: Sir Douglas Bader, in recognition of fortitude and distinguished service to the nation; N. A. Burges, for his contribution to the university as its first vice-chancellor; Sir Ian Fraser, for his contribution to medical science and public service.

Warwick

DLitt: Professor R. Pascal, professor of German, University of Birmingham, 1939-69; Lord Wolfenden, president, Chelsea College, University of London since 1972.

Appointments

Universities

Aberdeen

Lecturer: Christopher Cudworth (engineering). Lecturers on Probation: Roger Willett (accountancy); Trevor Stuchbury (agriculture); Michael Burke (pharmacology); Stephen Buckland (statistics); Imants Priede (zoology). Temporary Lecturer: Sheila Tait (pathology). Research Fellows: Gavin Mooney and Robert Steel (community medicine); A. Saidi (geography); Rosemary Stewart (medicine). Andrew Rigby (social work part-time). Research Assistant: Alastair Gray (community medicine). Part-time Research Assistants: Joan Seal (Institute of Medical Sociology); Mary Hector (genetics).

Edinburgh

Temporary Senior Lecturer: A. Jenkins (surgery). Lecturers: R. K. M. Hay (agriculture); I. R. Poxton and S. G. B. Amyes (bacteriology); A. J. Burt (child life and health); C. J. Roberts and D. A. R. George (economics); Mrs S. Young (physiology); M. Philpott (tropical animal health). Part-time Lecturers: Dr G. Tellini (Christian dogmatics); C. I. M. Hamilton (Greek); Mrs M. E. Anderson (orthopaedic surgery). Temporary Lecturers: Mrs E. G. Bard (linguistics); N. McD. Davidson (medicine, Western General Hospital); K. C. Rankin (orthopaedic surgery); D. A. MacLean (surgery); L. S. Watkins and Mrs P. M. Imlah (veterinary practice teaching unit).

London

Titles of Reader: R. A. Butlin (historical geography, Queen Mary College); Dr I. D. Carruthers (agrarian development, Wye College); Dr M. A. A. Clyne (physical chemistry, Queen Mary College); Dr A. K. Irvine (semitic languages, School of Oriental and African Studies); Dr K. E. K. Rowson (virology, Institute of Laryngology and otology).

General

The Institution of Metallurgists

Professor R. W. K. Honeycombe, Goldsmiths Professor of metallurgy at the University of Cambridge, has been installed as president of the Institution in succession to Dr A. J. Kennedy.

Department of Industry

Dr Paul Dean, at present head of the space and air research and of the research and development contractors divisions of the Department of Industry, has been appointed director of the National Physical Laboratory from October 1. Dr Dean will succeed Sir Ieuan Maddock, who will shortly retire from the public service.

Recent publications

The Directory of Careers Publications 1977-78, edited by George Hope and published by the Graduate Press, Wroxton House, Chorley Wood, Herts WD3 5LA (library edition £4.50, paperback £2.95), brings together information on the tremendous wealth of careers material published in this country. The heart of the book is the reference section which includes 900 separate books and pamphlets organized alphabetically by publisher.

Preceding this reference section is a careers index based on the careers library classification index, formerly known as the CRAC/CYEE index. Articles include "University, Polytechnic and Beyond" by Roy Ashwell of Oxford University Appointments Committee.

Grants

Leeds

Mechanical Engineering—£[illegible] (supplementary) from the SRC [illegible] investigation of the influence [illegible] trical fields upon flame gas[illegible] Dr D. Bradley; £6,864 (supp[illegible]) from the SRC for an investig[illegible] hydrostatic extrusion proc[illegible] polymers under Professor [illegible] and Professor I. M. Ward; £[illegible] plementary) from the SRC for [illegible] on theoretical thermal an[illegible] analysis for an IC engine [illegible] under Dr B. Parsons.

Electrical and Electronic Engineering—£15,050 (supplementary) from [illegible] for a project on the dynamic [illegible] ance of superconducting AC ge[illegible] under Professor P. J. Law[illegible] Dr J. M. Stephenson; £[illegible] SRC for a project on inter[illegible] metal contrasts on SI and GaAs devices under Dr D. V. [illegible] Dr M. J. Howes; £4,500 fro[illegible] for a project on structure of corona in rod/plane [illegible] corona under Mr D. [illegible] R. T. Waters.

Fuel and Combustion Sc[illegible] (renewal) from the In[illegible] Station for research into [illegible] over solid surfaces in con[illegible] confined situations under [illegible] of Professor A. Williams.

Ceramics—£8,923 from the [illegible] dom Atomic Energy Author[illegible] investigation into [illegible] of toughened glass under [illegible] Chemical Engineering—£[illegible] the SRC for a project on [illegible] operation of thermal [illegible] under Dr P. J. Heggs.

Noticeboard is compiled by Patricia Santinelli and Pauline Downs

Open University programmes May 28 to June 3

Saturday May 28

BBC 2
7.40 Complex Analysis: Singularities (M332; prog 3).
8.05 Making Sense of Society: Evaluating Arguments (D101; prog 16).
8.30 Technology Foundation Course: Motorway Noise (T100; prog 20).
8.55* Systems Modelling: A Matter of Opinion (T341; prog 1).
9.20 Topics in Pure Mathematics: Induced Topologies (M202; prog 15).
9.45* Introduction to Engineering Mechanics: Free Body Diagrams (T231; prog 7).
10.10 Systems Management: Goals and Goal Conflicts (T242; prog 6).
10.35* Science Foundation Course: Giant Molecules (S100; prog 13).
11.00* The Nature of Chemistry, Part 2: The GC/MS Link-up (S304; prog 21).
11.25* Images and Information: Lens Design (ST291; prog 7).
11.50 An Introduction to the Chemistry of Carbon Compounds: Conjugation, Aromaticity and the Reaction of Benzenoid Compounds (S24-; prog 8).
12.15* The Handicapped Person in the Community: Like Other People (PD351; prog 5).
12.40 Great Britain 1750-1950: Sources and Historiography: Dwellings for the Industrious Classes (A401; prog 7).
13.05 Linear Mathematics: Dual Cones (M201; prog 15).
13.30* International Politics and Foreign Policy: The Domestic Sources of Foreign Policy: Israel and the Occupied Lands (D332; prog 4).
13.55 Systems Behaviour: A Local Government System (T241; prog 7).
14.20* The Development of Instruments and their Music: A Symphony is Recorded.

RADIO 3 (VHF)
6.05 Fundamentals of Human Geography: Dartmoor: Management and Land Use Planning (D204; prog 5).
6.25 Economics and Education Policy: Economic Judgment in Education (ED322; prog 4).
6.45 Mathematics Foundation Course: Revision (M100; prog 16).
7.10 Arts Foundation Course: Which was Socrates? (A100; prog 7).
7.35 Science Foundation Course: Recollections by Sir Hans Krebs (Supplementary Material) (S100; prog 15).

RADIO 4 (VHF)
Excluding North Scotland and Wales
9.05 Open Forum—16.
9.20* History of Architecture and Design 1890-1939: Alvar Aalto: The Failure of Total Design (A305; prog 21).
9.40* The Age of Revolutions: Kant and Causality (A202; prog 16).
10.00* Personality and Learning: Kate and Richard (E201; prog 13).
10.20* Twentieth-century Poetry: 'A Foreign Mind': Yeats and Eliot (A306; prog 7).
10.40* Modern Art from 1848 to the Present: Theories of Art: (4) Cubism and Nietzsche (A351; prog 7).
11.00* Decision Making in Britain: The Student Exercise (D203; prog 15).
11.20* Science and the Rise of Technology since 1800: Decline of Science in England (AST281; prog 8).
11.40* Social Psychology: Conversation with Erik Erikson, Programme 1 (D305; prog 6).
14.00* Renaissance and Reformation: Popular Cosmology before Copernicus (A201; prog 15).
14.20* Urban Education: A Purely Educational Problem? (E351; prog 5).
14.40* People and Organizations: Ford (2) (DT352; prog 4).
15.00* War and Society: The Geneva Initiatives and the Laws of War (A301; prog 6).
15.20* Curriculum Design and Development: The Whole Curriculum: Discussion (E203; prog 30).
15.40* Urban Development: Discussion Programme (Link) (DT201; prog 12).
16.00* Technology for Teachers: Appropriate Technology (PET271; prog 8).
16.20* Patterns of Inequality: Eastern Europe: Income, Status and Wealth (D302; prog 14).
16.40 Language and Learning: Why Set Writing? (E262; prog 7).

RADIO 3 (VHF)
Replacement Programmes for North Scotland and Wales
24.00* Twentieth-century Poetry: 'A Foreign Mind': Yeats and Eliot (A306; prog 7).
00.20* Modern Art from 1848 to the Present: Theories of Art: (4) Cubism and Nietzsche (A351; prog 7).
00.40* Science and the Rise of Technology since 1800: Decline of Science in England (AST281; prog 8).

Sunday May 29

BBC 2
7.40 Arts Foundation Course: "The Clouds" (A100; prog 18).
8.05 Science Foundation Course: Cell Dynamics (S100; prog 15).
8.30* Mathematics Foundation Course: Running a Sine (M100; prog 14).
8.55* Electromagnetics and Electronics: Semi-Conductor Devices (TS282; prog 8).
9.20 Biological Bases of Behaviour: Emotion: its Physiology and Psychology (SDT286; prog 8).
9.45 Computing and Computers: Computer Structure—A Model (PM951; prog 5).
10.10* The Age of Revolutions: Wordsworth—Landscape and Words (A202; prog 7).
10.35* Personality and Learning: Cognitive Styles (E201; prog 7).
11.00 Mass Communication and Society: TV News at the Conferences (DE353; prog 6).
11.25 Economics and Education Policy: From School to Industry (ED322; prog 4).
11.50 Schooling and Society: The Case of William Tyndale (E202; prog 5).
12.15* Fundamentals of Human Geography: Spatial Analysis of Hyde Park (D204; prog 7).
12.40* Curriculum Design and Development: Myers Grove School (E203; prog 7).
13.05* Modelling by Mathematics: Shopping Around for Models (TM281; prog 5).
13.30* Science and Belief: from Copernicus to Darwin: The Construction of the Heavens (AMST283; prog 6).

RADIO 3 (VHF)
6.00 English Urban History 1500-1780: The Town and the Religious Historian (A322; prog 4).
6.20 Decision Making in British Education Systems: What's Left on the Campus? (E221; prog 8).
6.40 Man-made Futures: Design and Technology: Technology and the Individual: Making Some Connections (T262; prog 2).
7.00 Making Sense of Society: Fashions in Arguments (D101; prog 15).
7.20 Elements of Music: Harmonizing a Tune (1) (A241; prog 7).
7.40 Technology Foundation Course: Noise (Supplementary Material) (T100; prog 27).

RADIO 4 (VHF)
9.10 National Income and Economic Policy: Investment and Economic Growth (D284; prog 8).
9.30 The Early Roman Empire and the Rise of Christianity: Skit on the Death of Claudius (A291; prog 7).
9.50 International Politics and Foreign Policy: Who Makes Egyptian Foreign Policy? (D332; prog 7).
10.10 The Digital Computer: The Control Unit of the Computer (TM221; prog 6).

RADIO 3 (VHF)
24.00* The Age of Revolutions: Kant and Causality (A202; prog 16).
00.20* Renaissance and Reformation: Popular Cosmology before Copernicus (A201; prog 15).
00.40* History of Architecture and Design 1890-1939: Alvar Aalto: The Failure of Total Design (A305; prog 21).

Monday May 30

BBC 1
6.40 Solids, Liquids and Gases: Perfect Solids (ST290; prog 7).
7.05 National Income and Economic Policy: The Concept of Full Employment (D283; prog 4).
7.30 Social Psychology: You Don't Fool Me (D305; prog 8).

BBC 2
6.40* Systems Management: Goals and Goal Conflicts (T242; prog 6).
7.05* Ecology: Red Grouse: A Case Study (S323; prog 7).
7.30 Instrumentation: Position Transducers and Counting (T291; prog 6).
10.55* An Introduction to the Chemistry of Carbon Compounds: Conjugation, Aromaticity and the Reaction of Benzenoid Compounds (S24-; prog 8).
11.20* Analysis: Differentiation — Some Applications (M231; prog 6).
17.45 Genetics: How to Build a Phage (S299; prog 8).
18.10 Mathematics Foundation Course: "On the Surface" (M100; prog 15).
18.30* Technology Foundation Course: Motorway Noise (T100; prog 20).

RADIO 3 (VHF)
6.00 Personality and Learning: The British Intelligence Scale (E201; prog 14).
6.20 The Nineteenth-century Novel and its Legacy: The Narrator in "Middlemarch" (A302; prog 6).
6.40 The Development of Instruments and their Music: Haydn's Symphonic Development (A304; prog 8).
11.45* Language and Learning: Why Set Writing? (E262; prog 7).
18.05 Historical Data and the Social Sciences: The Cliometrics of Slavery (D301; prog 5).
18.25* Economics and Education Policy: Economic Judgment in Education (ED322; prog 4).
18.45 Public Administration: Management in Local Government (D331; prog 10).
19.10* Making Sense of Society: Fashions in Arguments (D101; prog 16).

Replacement Programmes for North Scotland and Wales
24.00* Decision Making in Britain: The Student Exercise (D203; prog 15).
00.20* Urban Education: A Purely Educational Problem (E351; prog 5).
00.40* War and Society: The Geneva Initiative and the Laws of War (A301; prog 6).

Tuesday May 31

BBC 1
6.40 An Introduction to Materials: Choosing a Material (T281; prog 7).
7.30* Making Sense of Society: Evaluating Arguments (D101; prog 16).

BBC 2
6.40* Biological Bases of Behaviour: Emotion: its Physiology and Psychology (SDT286; prog 8).
7.05 An Introduction to Psychology: Behaviourism (DS261; prog 5).
7.30* Public Administration: Policy for the Under Fives: Alternative Approaches to Child Care (D331; prog 3).
18.35* Complex Analysis: Singularities (M332; prog 5).
17.20 Physiology of Cells and Organisms: Fertilisation and Implantation (S321; prog 8).
17.45* Instrumentation: Position Transducers and Counting (T291; prog 6).
18.10 Systems Performance: Human Factors and Systems Failures: Safety and Reliability (TD342; prog 4).
18.35* Science Foundation Course: Cell Dynamics (S100; prog 15).

RADIO 3 (VHF)
6.00 An Introduction to Psychology: Student Exercise Results (DS261; prog 7).
6.20 Science and Belief from Copernicus to Darwin: Science and Belief in Eighteenth-century France (AMST283; prog 6).
6.40 Patterns of Inequality: Eastern Europe: Access to Education (D302; prog 15).
17.45 Education, Economy and Politics: Revision Programme (E353; prog 8).
18.05 Problems of Philosophy: [illegible] (A303; prog 12).
18.20* Elements of Music: Harmonizing a Tune (1) (A241; prog 7).
18.40* Fundamentals of Human Geography: Dartmoor: Management and Land Use Planning (D204; prog 5).
19.05* Arts Foundation Course: Which was Socrates? (A100; prog 17).

Replacement Programmes for North Scotland and Wales
24.00 Social Psychology: Conversations with Erik Erikson, Prog 1 (D305; prog 6).
00.20* Urban Development: Discussion Programme (Link) (DT201; prog 12).
00.40* Curriculum Design and Development: The Whole Curriculum: Discussion (E203; prog 30).

Wednesday June 1

BBC 1
6.40* Systems Behaviour: A Local Government System (T241; prog 7).
7.05 History of Mathematics: Points of View—Perspective and Projection (AM289; prog 5).
7.30 Telecommunication Systems: Telephone Switching 1 (T321; prog 11).

BBC 2
6.40* Genetics: How to Build a Phage (S299; prog 8).
7.00* Schooling and Society: The Case of William Tyndale (E202; prog 5).
7.30 History of Architecture and Design 1890-1939: Adolf Loos (A305; prog 12).
10.50 Mechanics and Applied Calculus: Energy and the Conservation Laws (MST282; prog 8).
17.20 Twentieth-century Poetry: "At the Hawk's Well" (A306; prog 8).
17.45* Methods of Educational Enquiry: An Empirical Approach: Interviewing (E341; prog 4).
18.10* The Revolutions of 1848: Revolutionary Theatre (A321; prog 5).
18.35* Arts Foundation Course: "The Clouds" (A100; prog 18).

RADIO 3 (VHF)
6.00 Management in Education: The Educators—Part 2: "Operation Spearhead" (E321; prog 6).
6.20* The Use of Libraries (1).
6.40 People and Work: Work Meanings, Cultures and Consciousness (DE351; prog 7).
17.45 Environmental Control and Public Health: Legislating to Control Pollution (PT272; prog 7).
18.05 Decision Making in Britain: Government and Nationalised Industries (D203; prog 25).
18.25* Analysis: The Mean Value Theorem (M231; prog 4).
18.40* Biochemistry and Molecular Biology: Allostery (S322; prog 5).
19.00* Mathematics Foundation Course: Revision (M100; prog 15).

Replacement Programmes for North Scotland and Wales
24.00* Technology for Teachers: Appropriate Technology (PET271; prog 8).
00.20* Patterns of Inequality: Eastern Europe: Access to Education (D302; prog 15).
00.40 Language and Learning: Why Set Writing? (E262; prog 7).

Thursday June 2

BBC 1
6.40 Modern Art from 1848 to the Present: Images of the City (A351; prog 5).
7.05* Mass Communication and Society: TV News at the Conferences (DE353; prog 6).
7.30* Economics and [illegible] From School to Industry [illegible] prog 4).

BBC 2
6.40 Decision Making in Britain: The Cabinet Committee, 2 [illegible]
7.05 [illegible] and Materials: Enzymes in Industry [illegible] 7).
7.30 Comparative Government: Inequality, Politics, Democracy (D231; [illegible]

RADIO 3 (VHF)
6.00 Curriculum Design and Development: Jerome Bruner (E203; prog 11).
6.20 Urban Development: [illegible] Approach to [illegible] (DT201; prog [illegible]
6.40 The Handicapped Person in the Community: Marriage and Parenthood (PD351; prog 6).
17.45* Decision Making in British Education Systems: What's Left on the Campus? (E221; prog 8).
18.05 Mechanics and Applied [illegible] Work and Energy [illegible]
18.20 Genetics: The Phage [illegible] prog 6).
18.45 Partial Differential Equations of Applied Mathematics (M321; prog 4).
19.10* Technology Foundation Course: Noise (Supplementary Material) (T100; prog 27).

Replacement programmes for North Scotland and Wales
24.00* The Use of Libraries (1).
00.20* Personality and Learning: The British Intelligence Scale (E201; prog 14).
00.40* Open Forum—16.

Friday June 3

BBC 1
6.40 War and Society: [illegible] Peace (A301; prog 7).
7.05 Renaissance and [illegible] Astronomy (A201; prog 8).
7.30* Systems Performance: [illegible] and Reliability [illegible]

BBC 2
6.40 Reading Development: [illegible] (PE231; [illegible]
7.00 Patterns of [illegible] (D302; prog [illegible]
7.20* Twentieth-century [illegible] Hawk's Well [illegible]
17.20* Solids, Liquids and Gases: Perfect Solids (ST290; prog 7).
17.40* National Income and Economic Policy: [illegible] ployment [illegible]
18.10* Social Psychology: You Don't Fool Me (D305; prog 8).
18.35* History of Architecture and Design 1890-1939: Adolf Loos (A305; prog 12).

RADIO 3 (VHF)
6.00* Environmental Control and Public Health: Legislating to Control Pollution (PT272; prog 7).
6.20 Telecommunication in Transport and Signalling (T321; prog 3).
6.40 Fundamentals of [illegible] Functions of [illegible] (M341; prog 4).
17.45* English Urban History 1500-1780: The Town and the Religious Historian (A322; prog 4).
18.05 Linear Mathematics: Normal Forms (M201; prog 21).
18.25 Drama: The Programme: Intimate Theatre [illegible]
18.45 Biological Bases of Behaviour: Mind and Brain (SDT286; prog 2).
19.05* Science Foundation Course: Recollections by Sir Hans Krebs (Supplementary Material) (S100; prog 15).

Replacement programmes for North Scotland and Wales
24.00 Renaissance and Reformation: Authority and Freedom (A201; prog [illegible]
00.20 History of Architecture and Design 1890-1939: Germany: The Twentieth [illegible] Tradition (A305; prog 23).
00.40 The Age of Revolutions: Free Will and Determinism (A202; prog 19).

* repeated programmes.

A case of high standards and too much to learn

In the third and final part of his series on medical education, Clive Cookson describes the changing undergraduate curriculum and takes a brief look at the special problems of the London medical schools

"Medical courses have become so congested and excessively factual in content that their educational value is open to question", said Lord Todd's Royal Commission in 1968. Today, after another decade of rapidly expanding medical knowledge and the creation of many new specialties, overloading remains the most serious defect of the undergraduate curriculum.

It affects both the traditional type of course (with roughly two years pre-clinical study of the basic medical sciences, followed by three years clinical work) and the more modern integrated curriculum.

When the basic medical sciences were discussed recently by London University's Academic Advisory Board in Medicine, members felt that all pre-clinical courses in London were overloaded. Reporting the meeting to medical school deans, Professor A. H. Crisp, dean of the university faculty of medicine, wrote: "It was suggested that one of the difficulties appeared to arise from the fact that the teachers of the established subjects were anxious to preserve the existing standards in their subjects and at the same time the teachers of the new subjects were anxious to teach to what they considered an appropriate standard. It was also stated that in some schools there was so much formal teaching that students did not have any time left in which to learn."

These views are apparently shared by students. For example Mark Smithies, a politically active third year student at the Middlesex Hospital Medical School, says the pre-clinical course is still "massively overloaded", despite recent reforms.

Newcastle University's pioneering medical faculty, which has run an integrated undergraduate course since 1962, is introducing a revised version during the current academic year. According to the curriculum review committee, teaching of the old course "has often been too concentrated and detailed and the factual content has been too great. Self-learning has not been encouraged sufficiently and little opportunity is provided for the pursuit of individual and academic interests".

In the new curriculum "teaching should be much less concentrated than at present . . . there should be greater emphasis upon general principles rather than upon detail, though it is accepted that there is an irreducible minimum of detailed knowledge which all students must acquire".

Early students at Southampton's new medical school were so overwhelmed by the intensity of the curriculum (arguably the most advanced in Britain) that formal teaching had to be cut by 10 per cent across the board.

Similar examples of overloading could be quoted from many medical schools. No one is claiming the students cannot take it—the low drop-out rate, between 5 and 10 per cent, shows they can. But many feel that universities would get better educational value from the £2,500 they spend annually on each medical undergraduate in recurrent costs, if a magic surgeon's knife could cut away the academic jealousies that prevent proper pruning of the curriculum.

The trouble, of course, is that most individual departments feel their particular discipline is already under-represented in the curriculum and they are plotting to increase their teaching time, not thinking how to reduce it. Then there are the subjects like medical physics which are not represented at all in many schools, fighting for a toe-hold in the curriculum.

An invaluable weapon for dealing with an overcrowded course is an efficient and powerful curriculum review committee to impose necessary cuts on the warring departments. According to Professor George Smart, principal architect of the integrated system at Newcastle, it is essential for the committee and its working parties to contain a mixture of different disciplines and different seniorities.

"There are at least two very important points about a mixture of different disciplines. The first derives from the truism that every specialist thinks that it is absolutely essential for the student to understand his specialty and that his is really the most important. Since everybody believes this, the way to deal with the situation is to put them together and knock their heads together and tell them to get some sense out of the situation. It is terribly important that the medical school should protect the student from specialist and departmental despotism", Professor Smart, now director of the British Postgraduate Medical Federation, told the Association for the Study of Medical Education.

"The second important point is that different specialities in this situation end up with a very much greater respect for each other. I have heard the disparaging views that some clinical people have had for pre-clinical and very much vice versa and I have seen these gradually disappearing. It becomes apparent to all that all have contributions to make and once you have that attitude you can start getting down to decide rationally what should be done with the student's time and how it should be done".

Some of the most respected figures in medical education feel the standard undergraduate curriculum could be shorter than the present five years. At first this may seem extraordinary, given the present overloading. However no one is suggesting a reduction in the two years generally spent on the basic medical sciences—the most congested part of the present curriculum. It is suggested that two years pre-clinical and two years clinical work would make a viable four-year course.

Many clinicians insist that two years is not enough to give the undergraduate adequate experience of the major specialties. But they are watching closely the new two-year clinical course started by Cambridge last October.

Another objection to shortening the curriculum is that it would inevitably squeeze out the elective and optional parts, which counteract the severe restrictiveness of the modern medical course (integrated or traditional). Most medical schools allow students academic freedom for at least a month or two—and sometimes considerably longer—to pursue their own studies or research projects, or even to visit hospitals abroad.

The most ambitious elective schemes are at Nottingham and Southampton. Nottingham's special medical sciences course gives students two terms in the third year to study a topic in depth before taking the university's unique BMedSci degree.

"We would be extremely sad to lose our honours year", said Professor David Greenfield, dean of Nottingham medical school. "Some people might be pleased to qualify a little sooner, but educationally it would be very damaging in the long term".

At Southampton the whole fourth year is spent on an elective project, apart from one day's formal clinical teaching a week. Students are offered a wide range of clinical and non-clinical subjects to investigate and, as at Nottingham, most of them seem to welcome the opportunity. "It is only through studying in depth that students really learn about medicine", said Professor Jack Howell, the deputy dean.

On the other hand, Dr John Ellis, dean of the London Hospital Medical College, advocates a return to the prewar flexibility of medical education, with the duration of the undergraduate course depending on the inclination and ability of the individual student. Uniformity was introduced under pressure from the local education authorities who paid student grants, not for educational reasons, he says.

Dr Ellis believes that the option of a year's study in depth should be available to students, but those who do not want to take it should be able to graduate in four years. "Some students do not really take happily to the vocational situation of the student. They are not natural undergraduates and become extremely frustrated, particularly in the rather long and desultory, fragmented clinical course of today. They feel cut off from medicine rather than part of it."

Those who graduate early could practise under supervision as junior house officers, as in the present preregistration year which has to be completed after graduation before the young doctor can be registered with the General Medical Council. The real question is whether graduation comes at the right point in the total continuum of the preparation of a doctor.

It was recognized as long ago as 1953, when the obligatory preregistration year was introduced, that five years in a medical school were not enough to prepare a doctor to practise any branch of medicine on his own. Since then there has been a tremendous expansion of postgraduate training, and the normal pattern for specialists now is a three year period of general training after full registration, followed by three, four or five years specialist higher training. This leads to a certificate of accreditation allowing the doctor to take independent responsibility for patients. For GPs three years vocational training is recommended — it will probably be made compulsory by 1980.

In spite of all this postgraduate training, the Medical Acts still require universities to turn out graduates whose "standard of proficiency . . . shall be such as sufficiently to guarantee the possession of the knowledge and skill requisite for the efficient practise of medicine, surgery and midwifery".

Although this has been impossible for many years, the GMC, which has statutory responsibility for medical registration, feels obliged to implement the law as far as possible. Therefore it has had to be, in its own words, "no obstacle to the reformulation of the undergraduate medical curriculum in the light of present needs".

The GMC wholeheartedly endorsed the following words of the 1968 Todd commission: "We cannot emphasize too strongly that the undergraduate course in medicine should be primarily educational. Its main object is to produce not a fully qualified doctor but an educated man who will become fully qualified by postgraduate training".

Yet the council has repeatedly and reluctantly been forced to tell medical schools at Nottingham, Cambridge, London and elsewhere to change curricula prepared in accordance with the Todd principles because they did not guarantee the production of a "safe doctor" who could practise medicine, surgery and midwifery after graduation.

The recommendations of Sir Alec Merrison's report on the regulation of the medical profession (1975) provide a way out of this absurd situation. The educational sections of the Medical Acts should be repealed and replaced by a general requirement for the GMC to "promote educational standards". The GMC should be responsible for the whole continuum of medical education: undergraduate education, leading to "restricted registration"; "graduate clinical training" under the supervision of a medical school, up to "general registration"; and finally specialist education, ending with "specialist registration" and the right to practise independently.

Broadly speaking, medical education has welcomed the Merrison recommendations, though there has inevitably been criticism too. The proposals for graduate clinical training have been the least well received. In particular it is pointed out that universities cannot hope to supervise graduate trainees properly if the DHSS continues to be solely responsible for funding postgraduate training.

Then there is the question of where all the graduate training posts would come from. There is already a rapidly worsening shortage of preregistration jobs, and it is being predicted that there may not be enough to go round all the students graduating by 1980. The DHSS and UGC are looking into the matter urgently, but it is already clear that the shortage is further weakening the universities' tenuous influence on the pre-registration year.

continued overleaf

dents't waiting for something to happen

12 into 6 'will not go' as London rumours abound

Rumours, speculation and controversy about the future of the 12 London medical schools have bubbled continuously during the nine years since the Todd commission recommended their amalgamation into six new schools. And we are still waiting for something to happen.

The capital retains 12 separate schools, mostly located in the rapidly depopulating central area, and the gulf between the training requirements of their clinical students and the service needs of the NHS continues to widen.

Todd wanted to merge them into six pairs (each of which would become part of a multi-faculty university institution) on the grounds that the individual schools lacked the academic resources to give a complete modern medical course.

It is now becoming clear, however, that any big change in the time-honoured pattern will be forced on to the University of London not primarily for educational reasons but because the Government will no longer be prepared to keep 12 teaching hospitals going in London when resources are needed more urgently elsewhere.

Many observers within and outside London medicine predict that the capital will lose two or three medical schools within the next decade or so, though few expect any dramatic moves before the next general election (and some provincial cynics claim that the voice of London is so influential in official circles that nothing will happen for many more years).

Meanwhile, the uncertainty is affecting morale and recruitment, at least in schools whose future looks most precarious.

The Middlesex and St Mary's, for instance, have been a target for unfounded closure rumours, the former because its parent hospital has virtually no catchment area, the latter because of its cramped and antiquated buildings. Last year the Middlesex felt obliged to insert a press advertisement saying it had a written assurance of a long-term future on its present site: "Candidates contemplating entry to this medical school at any time during at least the remainder of this century need not be disturbed by any rumours which may have appeared in the press."

Only two pairs of medical schools have moved any significant direction towards combination: University College and the Royal Free, and St Bartholomew's and the London. The other Todd pairs found the practical problems of coupling too powerful.

Opposition to the Todd proposals was particularly strong in the preclinical departments, alarmed at the prospect of forcible removal from the clinical surroundings of their medical school/teaching hospital to multifaculty institutions. In some cases the plans would also have impeded the development of integrated curricula.

The dean of the London Hospital Medical College, Dr John Ellis, who was on the Todd commission, still believes its proposals represented the best development plan for medical education in London. He does at least have the satisfaction of seeing increasing collaboration between his own college and Barts.

The two colleges share joint academic units in child health, virology, obstetrics and gynaecology, environmental and preventive medicine, and reproductive physiology; a joint clinical epidemiology unit is being established and will contribute to a joint board of studies in community health. Other clinical departments cooperate without formal union.

The joint units were set up because circumstances and personalities were right in those particular disciplines, or because two separate departments would not have been viable, Dr Ellis says, not because the college authorities forced a merger on to unwilling staff.

Strong opposition from St Bartholomew's, where the basic medical sciences are well accommodated in relatively new buildings, has prevented any pairing of preclinical departments so far. However, Dr Ellis believes that this too will eventually come about through force of circumstances, especially if the acute recruitment problems described in last week's article continue.

David Walker talks to Alexander Isserlis, retiring head of the Centre for Studies in Social Policy

Does talk of Brookings ignore policy analysts?

The council of academics and public men that runs the Centre for Studies in Social Policy is just now receiving applications for the post of director. Inevitably, they will bear in mind the current debate about founding a British equivalent of the Brookings Institute in Washington. How far does the centre function, at least in the fields of social policy, education, health and social services, as tester and evaluator of government policy in the way Brookings is held to do?

After a lifetime in the Civil Service, Mr Alexander "Sandy" Isserlis, the retiring director of the centre, is circumspect. Asked about the modish plans to found a "British Brookings" he simply says the issues need to be clarified, but that perhaps Brookings has only limited relevance in a different political set-up.

Others, including members of his staff, who constitute the first generation of professional policy analysts outside government, are more blunt. They consider the Brookings debate has ignored the work of the centre and bodies such as the National Institute of Economic and Social Research and the Institute of Economic Affairs. Much is made of Brookings's annual economic review—what of the forecasting done by NIESR?

Establishing a British Brookings, without learning the lessons afforded by Mr Isserlis's centre, would be short-sighted. Or, as one of the centre staff put it more crudely: "Would the British Brookings be able to avoid takeover by sociologists and debased Marxists in the way we have done?"

Few people claim the centre has a brilliant record. But in probing the assumptions behind such a judgment in the area of policy analysis, useful light might be shed on the big question of whether Britain needs additional study of policy by non-government and non-academic bodies.

The centre was set up five years ago with money—currently about £150,000 a year—from the Rowntree Memorial Trust. Mr Charles Carter, vice-chancellor of Lancaster University and chairman of its governing council, set out the purpose behind it.

"The idea was to provide an influence on the formation of policy by governments and Whitehall, especially by doing work on the sorts of problems likely to emerge over the next few years. In doing so, we wanted to escape from the tendency for problems to come up without any prior research or collection of information or consideration of them.

"The centre was deliberately not academic. It was not situated in a university because academics engage in long-term research. Their judgment on questions is not necessarily in line with the importance of national policy."

Alexander Isserlis: circumspect

After five years, what has the centre achieved? For most people, inside and outside government, it is characterized by its work on public expenditure. Under the name, primarily, of Mr Rudolf Klein, a former *Financial Times* journalist, it has published a series of papers breaking down the spending figures available from the Government and linking them to movements within health, education, the personal social services and housing.

The tone of these papers, like that of the centre, is down-to-earth and realistic. Resources are finite, the Government has to make choices, not all interest groups can be placated at once. A theme that has emerged in recent publications—notably *Constraints and choices*, an analysis of social policy and public expenditure in 1976—is that of paying for services. Some council members would like to see the development of the "revenue approach" concentrating on the economics of social policy and the taxation strategies needed to pay for it.

Other publications by the centre, with its offices in Doughty Street, WC1, include a study of community health councils, day care for young children, and the proceedings of seminars at the centre on population and regional development. The official publications list of the centre, and its permanent set of fellows, contains articles published in weekly, monthly and quarterly magazines. In other words, the centre acts as a facility for its fellows to inject ideas, notably on subjects like the organization of the health service and economic management, into general debate through periodicals and newspapers.

The centre also runs a seminar programme to which Whitehall civil servants and academics are regularly invited. The theory—and on this the sanguine plans for a British Brookings also depends—is that in informal exchanges around a table ideas are generated, seeds are planted and horizons expanded.

To date, the centre has accommodated about 20 fellows. Several such as Miss Rosalind Brooke, a lawyer specializing in welfare rights, have since gone into the academic world. Others such as Professor Michael Fogarty, have come from university to spend time at the centre. The centre maintains links with people who formerly worked for it; for example the Conservative MP, Mr Timothy Raison, and Dr Tessa Blackstone, of the Central Policy Review Staff. The centre affords its staff a wide area of freedom to choose subjects for study.

Such are the centre's main activities. To Mr Carter its "mere existence" has been a point of reference in the social policy field. To others, however, all this constitutes a rather "low profile"; academics are wont to talk of their "disappointment". Is this justified?

Any explanation of this judgment must begin with Mr Isserlis's style. He is no headline-grabber and has never conceived his role to be a propagandist either for the centre or for policy analysis. A former Whitehall man his watchword has been: the centre should be judged by the quality of its work. And on that count he is now leaving with a degree of satisfaction about the work done there in recent years.

Whitehall men have come to the centre's seminars and read the publications, he says. If they are not conquered it only serves to highlight the complexity of the policy-formation process.

Mr Isserlis probably would share the sentiments of Professor Richard Rose of Strathclyde University, who said in a recent article: "For social scientists to complain that their views do not have much influence upon public policy is to fall victim to a pathetic fallacy, a belief that there ought to be philosopher-kings; and they are the heirs apparent. A wide acquaintanceship with political processes would show them that many participants—legislators as well as ordinary citizens—feel they have insufficient political influence. Many political scientists doubt whether any one individual or category of individuals can be said to 'determine' Government policies."

So it is with policy analysts. At best, Mr Isserlis says, the centre is in business to clarify Civil Service minds, to provide some reflection before the brute facts of day-to-day government creep up on them. The centre attempts to increase "understanding" of the issues of public expenditure, manpower planning, demographic change. There is no rational answer to a problem of government to be had simply by sitting a group of right-thinking men and women around a table and letting battle commence.

In dealings with Whitehall trust is everything. Mr Isserlis with his contacts stemming from years in the Home Office and the former Ministry of Housing, has been concerned to keep faith with civil servants coming to seminars or opening departmental files to fellows from the centre. This has meant avoiding the negative hostility often shown by social scientists to government and the "arrogance of know-all academics."

The question now facing the centre's council is whether Mr Isserlis's philosophy of minimum expectations needs to be changed. His way of running the centre may not have alienated the Civil Service permanent secretaries but nor has it arrested the attention of men of affairs. Indeed, a member of the council prominent in his field, said he did not know enough about the centre after two years on the council to be able to speak of its work.

Has the centre made sufficient contact with the country's powers who are not in Whitehall, MPs and local authority staff and councillors? Has it created a cadre of policy analysts who are neither academics manqués nor civil servants with itchy feet who can move into other jobs stimulated by their time in Doughty Street? Has the centre's performance answered those who argue there are too many "low-powered" institutes around not getting to grips with the country's real problems?

Changes likely to follow Mr Isserlis's departure include further moves to bring together a number of independent policy analysis institutes working in London. At present, and Mr Isserlis has encouraged this, the centre, the Centre for Environmental Studies, the NIESR and Political and Economic Planning have close contacts; they share libraries, swap notes. There may well be some life left in the proposal made by Professor Ralf Dahrendorf last year for an "institute of institutes".

At its best, according to Professor Roy Barker, a council member, the centre will remain what its title claims. In North America the centre has established a reputation as the place to find out what is happening to social policy in Britain. Social policy is becoming more and more a respectable category of Government activity. He hopes under its new director the centre will concentrate in on three aspects and dig deep.

That there is a place for the centre is illustrated by comparing the recent report by the Central Policy Review Staff on population and the social services and work done on the same theme by the centre.

The CPRS report is, naturally, tighter. It poses specific questions for the various Government departments facing a drop in their client populations. But it can fairly be said that the climate of opinion the CPRS is trying to mould was first shaped by the centre in April last year when it polled together various people concerned with the problem, gave them their heads and published the result.

The result was, in fact, a very interesting 90-page report called *The Uncertain Future*. In so far as it got through to the opinion leaders—and the centre has a widespread mailing list in journalism, academe, and the public service—it may well have had influence. But to claim more is to deny the complexity of our political system, which is something Mr Isserlis has never done.

Too much learning can be a bad thing for trainee medics

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Many critics of British medical education would expect universities to use any extra flexibility given by the implementation of the Merrison proposals to put more emphasis on community health and social medicine. Medical schools have moved some way in this direction over the past 10 years, but not far enough to satisfy the section of educational and political opinion that regards them as conservative and elitist, geared to the traditional prestige patterns of the profession rather than the health needs of modern society.

It is not just in the formal curriculum that the traditional areas of acute medicine and surgery are over-emphasized, and community health, geriatrics and so on are underplayed, some people say. There is also a "hidden curriculum" through which academic staff pass on their professional prejudices.

Much of this line of attack comes from the left, of course. For example, Dr Sam Baxter, secretary of the radical NHS Consultants' Association, believes medical education is centred too firmly on teaching hospitals obsessed with high technology medicine, where chronically sick old people are liable to be seen as "detritus taking up bed space". He is also concerned that medical students are influenced too strongly in favour of private practice by the presence of many "part-time consultants", particularly in London.

Similarly the National Union of Students Health Section says "patients are presented to students as pathological entities, their families, background or life outside hospital disregarded. In the prestigious teaching hospital the preponderance of rare disorders and specialist innovative treatments creates a student output unskilled in the management of common disease, long-term or community care."

The NUS wants universities to introduce common basic courses for medics, nurses and other health students, so that doctors will no longer feel superior to other members of the "health team".

The DHSS told the Merrison committee that medical schools should do more to motivate students to enter the shortage specialties (notably geriatrics, psychiatry, pathology, venereology, anaesthetics and radiology). As well as using moral persuasion on universities to devote more teaching time to these fields, the department is sometimes prepared to use its resources to help them to start or strengthen relevant academic units, for example by appointing a senior registrar in the discipline to support a new professor.

One senior DHSS official suggested that it would be a good idea for medical school deans to give a talk to all new students about the health needs of modern society, heading them away from the popular fields and pointing out the rewards of geriatrics and so on.

Academics generally think the imbalance between branches of medicine is something for the NHS to sort out, not a problem that undergraduate education could (or should) influence significantly. Many believe that some disciplines attract fewer doctors because they are intrinsically less interesting or satisfying, and they hate the idea of luring medics into them by painting them in false colours.

And, whatever the critics may say, every medical school has substantially increased the time and resources allocated to community and social medicine, geriatrics and psychiatry, often against very strong pressure from established disciplines. They are still minor subjects—a recent estimate put the average component of community medicine in the undergraduate curriculum at 2 to 3 per cent—but they make progress with every revision of the curriculum.

The three new medical schools were able to give them more prominence from the start. Leicester devotes a fifth of the first two years to "the scientific study of man in society". Southampton's early courses include sociology (51 hours), psychology (51 hours) and "man, medicine and society" (24 hours). "The community" is one of the three main themes of the basic medical sciences course at Nottingham.

A few schools have developed schemes that allow students to follow the progress of individual patients for a period of months or even years. (Dr Ellis says he wants to do something similar at the London Hospital Medical College: keep each student in touch with a family throughout the five year course, but he has not succeeded in selling the idea to his staff).

There is also a trend for medical students to spend more time gaining clinical experience in "peripheral hospitals" away from their own teaching hospitals. Some professors, especially in London, are still reluctant to let students go for long, lest they pick up bad habits away from the centres of excellence

But Manchester University successfully sends 175 students a year out to general hospitals throughout North-West England for their whole fourth year. The scheme was started out of necessity because there were not enough clinical teachers in the Manchester teaching hospitals to cope with the big expansion of the medical school, but it is now rated a success on educational grounds.

New UGC guidelines on the use of teaching hospitals say: "There is no reason to discourage this spread of student teaching to peripheral hospitals in the later years when the clinical period lasts for three years with two separate phases of medicine and surgery. . . . When the curriculum consists of only two continuous years of clinical practice there are compelling reasons to utilize the facilities available in the teaching hospital and medical school rather than to disperse students to peripheral hospitals."

Increasing the exposure of students to community medicine and geriatrics presumably broadens their attitudes to medicine, but the effect on career patterns is not clear. Judging from some surveys and conversations with students, a typical reaction to geriatric experience is "I am glad to have found out about it, but it has put me right off the idea of a career in geriatrics".

And those who start careers in geriatrics are often only too keen to get out again. According to Dr J. O. F. Davies, former secretary of the Council for Postgraduate Medical Education: "Many of those who have appointed physicians with a geriatric interest have been dismayed to find at the end of the day that the interest which has predominated has been that of general medicine and the expansion of work which has gone with it has ended up with the hiving off of the geriatric part of the job. This is a problem the solution of which may take a long time to find."

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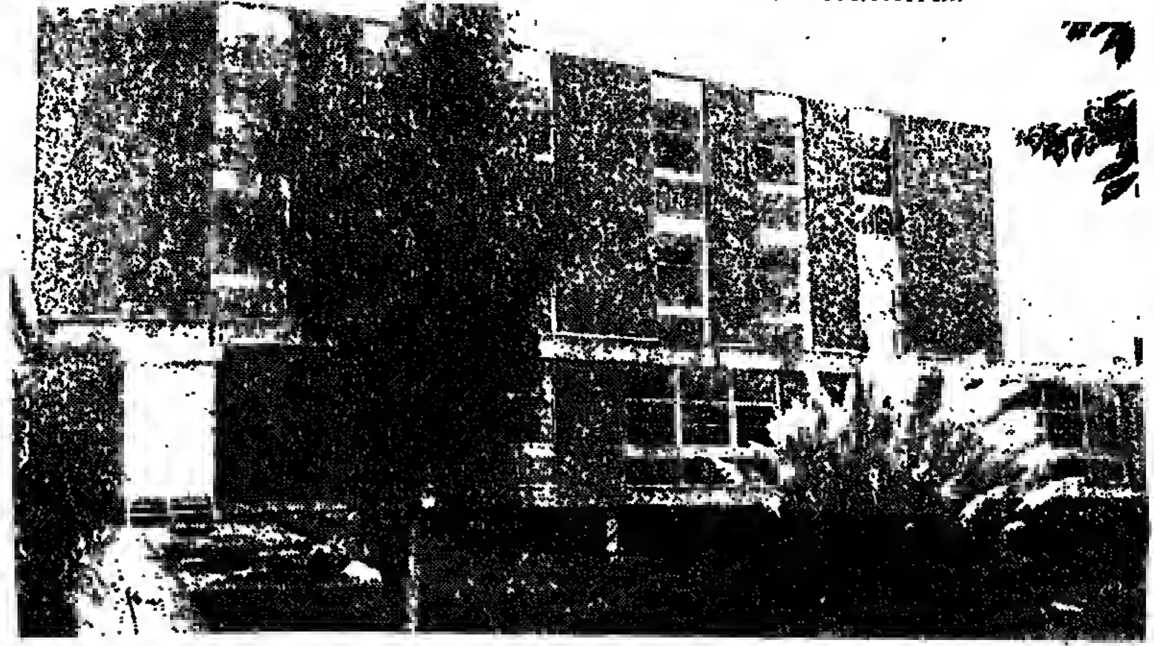
Teacher training reorganization: the West Midlands



North Worcestershire College: to lose teacher training?

Little joy as West Midlands prepares for college mergers

Serious eyes have been cast at the West Midlands, which—in terms of population—has received rather more than its share of teacher training places. But there is no rejoicing in a region where three colleges have already been axed and will close in a year's time. The proposed reorganization would concentrate teacher training in the industrial conurbations, with the exception of Worcester College of Higher Education.

The only college to lose its teacher training is North Worcestershire College, a merger between Shenstone New College and Bromsgrove College of Further Education. Two years ago Shenstone put up a long, tough fight to save itself after a suggestion that Shenstone or Hereford should close. In the end, Hereford was chosen, though not until Hereford and Worcester county council sub-committee voted for the closure of Shenstone.

One of Shenstone's main arguments at that time was the forthcoming merger with the college of further education, strongly supported by the Government which believed it presented an opportunity for teachers to be taught side by side with industrial and commercial students.

The situation of the two colleges—merely a playing field apart—was ideal. Now, though the call for teachers to know more about industry has grown louder, the North Worcestershire experiment is on the point of being abandoned.

Whatever happens, the college will go on. Only 80 of the 270 staff are involved in teacher education. But the removal of initial training will present problems. It will make it harder to get a series of new degrees off the ground and it will make an early expansion of non-teacher education courses essential.

There appears to be no shortage of recruits, but such an expansion may not be in the institution's best interests. Teacher training at North Worcestershire owes its inclusion in the list of closures to geography. The college is within comparatively easy reach of Birmingham. Worcester is more centrally placed within the Hereford and Worcester boundaries.

To make up for the loss of teacher training in North Worcestershire, Worcester College has earned the distinction of being the only freestanding institution in the country to be awarded more places.

The other college most affected by the proposals is Madeley, which it is suggested should merge with the North Staffordshire Polytechnic. Madeley is resigned to the merger which was first put forward and rejected several years ago. In an area which already has Keele University and the polytechnic, the college recognizes that it would be very difficult to survive independently with drastically reduced numbers of students.

Work has started on plans for the merger with the polytechnic, which is already split between Stafford and Stoke-on-Trent. Madeley is eight miles from the Stoke site and this may prove a problem as the polytechnic intends to use the college accommodation. The merged institution has been allotted 400 teacher training places and Staffordshire County Council is pressing for more.

Plans for the Madeley merger have been held up temporarily because of the change of political rulers after the local government elections. In Coventry, where another merger is under way, the effect of the elections may be more significant. Coventry College of Education was scheduled to be merged with Lanchester Polytechnic this autumn.

The decision that the college should merge with the polytechnic rather than the University of Warwick was reached after much wrangling. At one stage the merger with Warwick almost went ahead. Then the Labour-controlled local authority decided that it did not want to lose the college or its valuable land and property. The Conservatives opposed the merger with the polytechnic as did most of the college staff and teachers in the city.

Approval for the merger was given last autumn, and since then a working party has been sorting out problems. One is the staff/student ratio at the polytechnic which the Government considered too high even before the merger was proposed.

All the discussions, however, were thrown into the melting pot when control of Coventry council passed to the Conservatives. They have called a halt while they review the situation. The university's position remains unchanged but the merger with the polytechnic may still go ahead simply because it is now too late to make different arrangements.

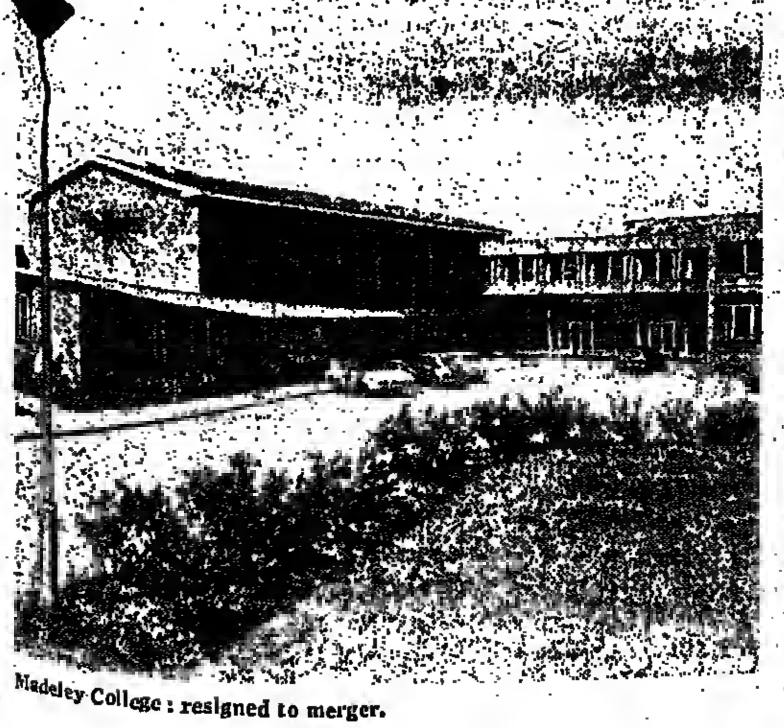
In Birmingham, more than half the initial teacher training places will be in the hands of two voluntary colleges, Newman and Westhill. Birmingham Polytechnic—which now includes the City of Birmingham Colleges of Education, Anstey and Bordesley Green College for mature students—will have its numbers cut by 150 if the proposals go through.

In Walsall, a cut of 100 in the number of places is also causing worries. The college's three diversified degrees will not be offered until next year and it expects to have to cut the number of options open to BEd honours students.

- **Teacher training should cease at North Worcestershire College;**
- **Provision at Worcester College of Higher Education should be increased from 650 to 750;**
- **Madeley College should amalgamate with North Staffordshire Polytechnic;**
- **Provision at Birmingham Polytechnic to be reduced to 850 and at West Midlands College to 500; and**
- **If the proposals go through initial teacher training places will be:**

Birmingham Polytechnic	**850**
Lanchester Polytechnic, Coventry	**700**
North Staffordshire Polytechnic (with Madeley)	**400**
Newman	**700**
Westhill	**420**
West Midlands	**500**
Wolverhampton Polytechnic (with Dudley)	**700**
Worcester College of Higher Education	**750**

Judith Judd



Madeley College: resigned to merger.

What stands between lecturers and the dole?

Frances Gibb looks at tenure to complete our series on academic career prospects

Cuts and redundancies are bedfellows. Contraction in industries such as printing, textiles and mining have led to redundancies in polytechnic departments linked with them, and the closure of teacher training colleges have led to loss of jobs. So far universities have escaped, but in the past year, with talk of their money being reduced, vice-chancellors began to voice fears that redundancies would be unavoidable.

The question thus began to arise as to whether or not academics had security of tenure: how easy was it for them to be sacked? Security of tenure in a job, which not only academics, but civil servants, are held to have, means that the employee cannot be dismissed except for "good cause." This is defined as misconduct, failing to carry out work for which he was employed or sickness. There is also a well-defined practice to be gone through before dismissal, and the contract contains extensive safeguards against wrongful or unfair dismissal.

In the polytechnic sector, which has experienced redundancies, there is a clearly defined national procedure on tenure, called "The Tenure Agreement" drawn up between local authorities and the old Association of Teachers in Technical Institutions. This states that a teacher can only give notice at three specific times in the year: end of April, August and December, and can only be given notice for those dates.

Where he believes notice is unreasonable or unjustified, he has the right to appear, with the assistance of a friend, before the authority or governing body to argue why he should not lose his job.

If he is dismissed for misconduct, he has the right of appeal before the decision is ratified, and during that appeal, has the right to appear before the authority, again with the help of a friend.

As a result of recent employment legislation, he has also the right to go before an industrial tribunal if still not satisfied.

In the case of compulsory redundancy—which is opposed by the National Association for Teachers in Further and Higher Education—there is a national model redundancy agreement setting out the procedure to be followed. All efforts must be made to find alternative employment for the employee, and he must be given at least 12 months' notice and the right to argue his case before the authority. Authorities should also grant secondment on full pay for retraining.

This agreement does not apply, however, to redundancies caused by major reorganization in higher education such as with the colleges. Redundancies as a result of a directive from the Secretary of State for Education are covered by the Crombie Code, which sets out more favourable terms of compensation than the NATFHE agreement.

The case is much less clear cut in universities. The Association of University Teachers, like NATFHE, opposes compulsory redundancy, on the ground that a lecturer does both teaching and research, and if his teaching load falls, he can increase his research work.

For the purposes of tenure, staff can be grouped in three categories. First, those who, in the natural course of events, expect employment until retiring age. Second, staff theoretically on short-term contracts, but who have had them renewed several times so that, the AUT say, a university has an obligation to give them a form of tenure—especially as in some instances they have spent a third of their working lives on renewable short-term contracts.

Third, there are staff who, by tradition and as regular practice in universities, have a short-term contract for specific reasons, and expect to leave at the end of it.

University lecturers' jobs and conditions are set out in their particular university's charter and statutes. There is no national agreement as in the polytechnic sector. In the charter or statutes, there is a clause which says an employee can only be dismissed for "good cause" which, in some cases, could mean the university's running out of money.

But normally this means misconduct or failure to carry out work. Some charters, and especially the newer ones, say "only for good cause and subject to the terms of his contract". The terms of the contract, in turn, usually say that an employee can only be dismissed if he is given six—sometimes nine—months' notice.

There are two schools of thought as to whether staff with these contracts actually have tenure. One interpretation is that the contract overrides the charter and, given the appropriate notice, an employee can be dismissed irrespective of there being a "good cause".

The second, held by Mr Laurie Sapper, general secretary of the AUT, is that the contract cannot override the charter, which is almost of the status of an Act of Parliament, and that there must still be a good cause given for dismissal. So far, there has been no test case to determine which is right.

Lecturers at the AUT conference in Liverpool last week expressed concern at the lack of knowledge about security of tenure, and instructed the executive to find out to what extent it existed.

The association, they urged, should resist all attempts to erode the principle of tenure for existing staff and future appointments.

They were particularly worried about post-doctoral research staff on short-term contracts which employers are increasingly not renewing. The AUT estimates that there are now 12,000 researchers who have held short-term contracts registered as unemployed. They are, therefore, technically redundant.

The law is just as inconclusive and complex when it comes to staff on short-term or fixed contracts. A fixed contract is one where the starting date and finishing date are certain. A lecturer on a fixed contract is deemed to be dismissed when his contract runs out, and be entitled to redundancy payments or compensation for unfair dismissal.

It is possible for staff on fixed contracts of two or more years to agree with their employer to waive their rights to redundancy payments. According to the AUT some universities have been insisting that staff give up these rights.

Since a recent Court of Appeal case, however, the law has changed. The Court ruled that an employee had no right to waive his rights to redundancy payments if his contract contained provision for notice to be given. The argument was that if the contract could be terminated by either side before it had run its course, it was not strictly a "fixed-term contract".

After that ruling, some universities began to strike out the "notice" clause from fixed contracts, thus enabling employees legally to waive their rights to redundancy payments.

Whether when such a contract ends there is dismissal—and therefore a right to redundancy payment—or whether the contract is deemed to have run out with the passing of time, is now being contested in a number of universities.

Keele, the London School of Economics and Imperial College all have cases involving aspects of tenure and dismissal waiting to come before an industrial tribunal. So far, the AUT has won its case against Keele and lost against Imperial College and LSE. So Keele is bringing the first case to the tribunal and the AUT the others.

Meanwhile, the result of a case currently before the Employment Appeals Tribunal, concerning a BBC employee on short-term contract, will be significant for universities. The issue is important because, with the financial squeeze, there is estimated to be 3,000 lecturers on short-term contract. As for the rest of university lecturers, if university funds continue to diminish, a test case on tenure becomes increasingly likely.

LETTERS TO THE EDITOR

OU and schooling

Sir,—Messrs Lewin and Vulliamy (*THES*, April 29) impugn my review (April 22) of their OU reader, *The Process of Schooling* for three reasons. I did say that much of the material is American: more than one-third is. I did say that much of the material is old and previously read by me: age with such ephemera is largely a relative judgment and I do find the material old, or, if the editors prefer, stale. As I suggested, the book smells of the 1960s.

The editors praise their footnote on structural functionalism as clear and precise. I envy their good opinions of themselves. The statement about the sources is factually wrong: have the editors read Burke or Spencer? Have they read Comte, Bonald, Hegel? I took one of their sentences on Lazarsfeld as parenthetical in intention. Apparently it is not so. For that I apologise. That the error is possible casts doubt on their clarity.

The article on Science, Nature and Control by Shapin and Barnes is on a subject which interests me, is neglected, and concerning which I would wish to know more. They proceed largely by aspersion and the deployment of pejorative adjectives. This devalues their case. Any reader who cares to see what I mean can turn to the article itself, pages 55-65 of *Schooling and Capitalism*. The reader who does not feel "propagandized" will, I suggest, be very naive indeed.

I am not concerned to attack the OU. To the contrary I am, this side of idolatry, an admirer. But this admiration is not relevant when it comes to reviewing books.

Yours faithfully,
DONALD G. MACRAE
Professor of Sociology
London School of Economics and Political Studies.

Policy studies

Sir,—For a Boston professor to be alerting us to the particularities of the American scene and the hazards of a Brookings transplantation (*THES*, May 6) is not without irony, but it is a warning to be heeded.

Analogous comments can be made about proposals for a British-style Ecole *Nationale d'Administration*. These ideas share characteristics beyond those set out by Professor Miller. Both represent borrowed solutions for problems inadequately diagnosed. As such, they are likely to prove futile, adding further to the number of supposedly innovative institutions which yield little.

More fundamentally, they are likely to aggravate the problems they are intended to resolve and buttress continued weaknesses in accountability and responsibility. In the policy area, arguments for more research and training not infrequently are a substitute for action for which the case is already strong and where the nature of the changes required for significant improvements does not go beyond the stock experience already available.

The need is to tighten up on our requirements of those in positions of high managerial responsibility, in the public no less than in the private sector, to introduce a stronger discipline of accountability, then to back developments inside organizations which improve capacities to evaluate and raise standards of effectiveness. It is there that the development of policy studies needs to take place. In the current climate, proposals for new institutes tend only to divert attention from these central issues.

M. B. BRODIE,
Dean,
Thames Valley Regional Management Centre,
Wellington Street, Slough.

School alive and well

Sir,—In case readers of your profile of the Polytechnic of Central London (*THES*, April 15) are led to assume that its schools of management studies and social sciences and business studies no longer exist, let me hasten to assure them that they are alive and well, and located in central London. There has, in fact, been no break in the teaching of management and business here since 1923.

KENNETH AMBROSE,
School of Management Studies,
MILES ATCHINSON,
School of Social Sciences and Business Studies,
Polytechnic of Central London.

Censorship and the BBC

Sir,—We wish to express our concern over the reported refusal by the BBC to televise the Open University's production of Genet's *The Balcony* on the grounds of obscenity in the opening scenes (*THES*, May 13).

Over the past 20 years, Genet has gained a reputation as one of France's greatest living playwrights. Any serious production of one of his plays, even when presented in television terms, requires a respect for Genet's detailed instructions for the realization of the text, particularly in the special instance of a production for Open University students. The inability of the BBC administration to distinguish gratuitous titillation from the dramatic expression of a powerful and important artistic vision is unfortunate.

Genet's plays will survive distorted productions. Of more immediate concern than this are the queries raised about the relationship between the BBC and the Open University, and particularly the unsavoury question of censorship. The Open University, if it is to provide education in any meaningful sense, must be free to discuss a subject in whatever manner it thinks fit. The BBC has its obligations under the Charter, but the refusal to screen the play at any hour—even 6 am on Sunday—seems to display an excessive concern for viewers' sensibilities. Academic integrity should not be subject to prejudices exercised under the guise of "public responsibility". Such vetos will effectively prevent Open University arts courses from making any substantial contribution to the field of education or, in broader terms, the expansion of cultural awareness.

Finally, it should be recalled that *The Balcony* first achieved a mass audience in Britain 13 years ago when broadcast in the Third Programme on November 20, 1964. If the BBC is disturbed by the potency of the televised image, is it equally convinced of the impotence of the spoken word?

J. ADAMS,
P. F. CORBIN,
Lecturer in English,
J. E. FLOWER,
Professor of French,
J. FOX,
Lecturer in French,
E. W. MARTIN,
Research Fellow,
L. du S. READ,
Lecturer in Drama,
J. RUDLIN,
Lecturer in Drama,
G. SALGADO,
Professor of English,
P. W. THOMSON,
Professor of Drama,
N. N. SALES,
Lecturer in Drama,
University of Exeter.

Lecturers and pay code

Sir,—I must congratulate David Walker (*THES*, May 13) in finding yet more material in that political lost cause, pay parity for university lecturers.

For the record, the extra two increments in the university career grade scale represent at best a longer apprenticeship, and not the "real advantage" which is sometimes supposed. There is a joke current at Brunel University: first the good news, the Association of University Teachers have negotiated an automatic progression to the senior lecturer grades. The bad news—that we have parity with the polytechnics, but only at the top of the scale.

There are other points of detail. Non-contributory pension schemes in the Civil Service—there would be a lower fraction of university teachers earning over £6,400 in the universities if we were allowed to appoint enough young lecturers to enjoy the favourable staffing ratios of the public sector—early polytechnic promotions permitted to senior lecturer, and so on. But there is one thing (though it does not help my lecturers to pay their bills): we do have brighter students.

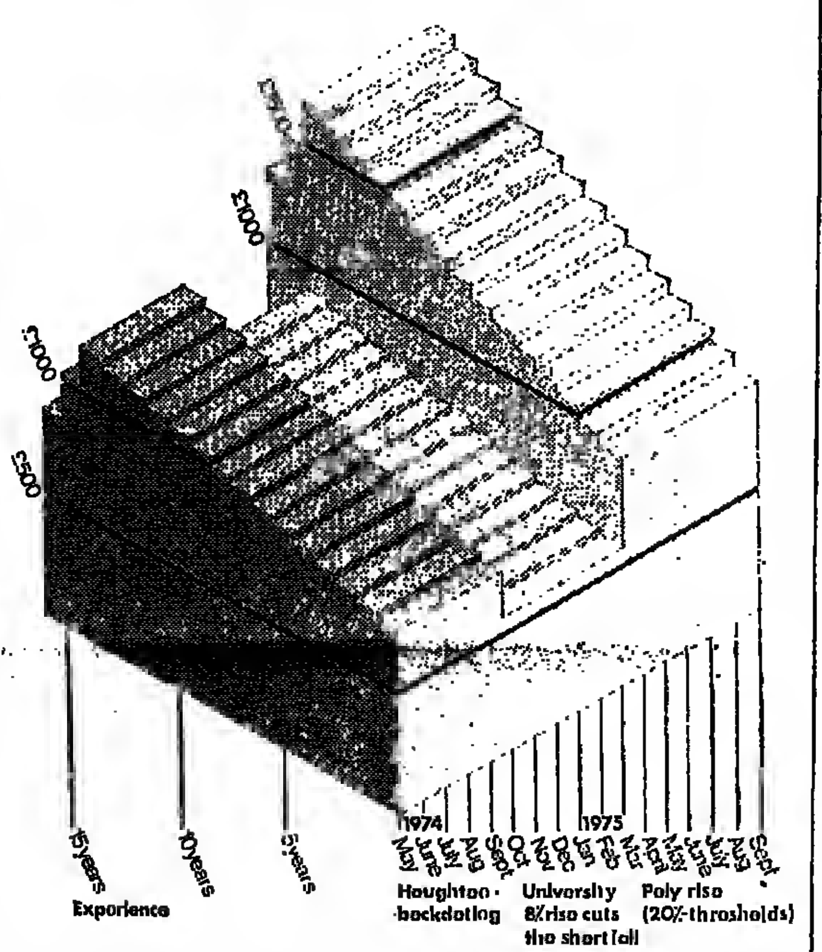
M. L. V. PITTEWAY
Professor of Computer Science,
Brunel University.

Sir,—University teachers and administrators attending the Liverpool Council meeting this week will welcome your leader and David Walker's statistical analysis (*THES*, May 13) but I would make two comments on your proposals.

If the TUC's price for a Phase Three is the restoration of flexibility in salary negotiations, the Government would do well also to restore the integrity of the national arbitration machinery, without which we shall not avoid sterile threats or strike action. The introduction of a compromise two-year package implementation of the 1975 award—outside the "cash limits" bind—would be a welcome gesture in this direction.

David Walker may be forgiven for suggesting in these inflationary days that academic work is pleasant and secure—to quote W. S. Gilbert, "In lazy langour—motionless, we lie and dream of nothingness." Reality for many young men and women in this university (and Cambridge is no exception) is that proven ability and talent are no guarantee of security of tenure. For this reason the "*THES* package" would be a more effective economic expedient if it were weighted in favour of the under-35s in the first year.

PHILIP LAIDLAW,
Vice-President,
Cambridge Association of University Teachers.



Sir,—David Walker's article on university teachers' salaries (*THES*, May 13) left me feeling very disappointed. There is obviously scope for presenting all points of view in the long drawn out controversy about salaries, but surely an article so full of nonsequiturs is an inadequate vehicle for any point of view.

Since when has reviewing been paid (at least for the majority of academics)? What does the fact that there are 3,300 professors and 1,200 assistant secretaries prove? Certainly not the implied suggestion that it is three times as difficult to become an assistant secretary as it is to become a professor.

Unlike David Walker I am not, primarily, interested in differentials (though I do not think that to compare a graduate school teacher's salary with a university lecturer's is necessarily appropriate when these days a lecturer is much more likely to have two degrees than one). University lecturers start their working lives late and it is in the early part of their careers that the pinch is really felt. Mr Walker does concede that young lecturers' salaries are important but does not pursue the point.

What concerns me most closely is the relatively low pay which young lecturers receive and which means that many either decide that they cannot support a family or are struggling to do so. For them a shortened salary scale is as important as a salary rise.

To compare the lecturers' scale with the sums paid to administration trainees and principals in the Civil Service is distinctly misleading because ATs can usually reckon to become principals by 30, whereas lecturers are nearer 40 before they achieve a salary comparable with a principal's.

When the arbitration committee agreed that what the Department of Education and Science was offering was too low some hope was offered to young university lecturers and their families. This expectation has yet to be fulfilled. When one gets away from all the invidious comparisons between the status and wageworthiness of university and polytechnic lecturers this central fact remains. An impartial recommendation was made. For one currently suffering the effects of its non-implementation reading an article like Mr Walker's is a depressing experience.

CHARLOTTE BYRNE,
79 Langley Park Road,
Sutton, Surrey.

Research income

Sir,—Your article on research income of UK universities (*THES*, April 22) correctly pointed out the wide disparity between the abilities of universities to attract research funds. However, care is needed in interpreting the figures selected and it seems to me that your overall conclusion about the dominance of certain kinds of universities is invalid.

First, the figures in the Statistics of Education of income for the universities of Oxford and Cambridge exclude all income of the colleges except contributions of the colleges to the university. These figures are therefore not directly comparable with those for other universities since at Oxford and Cambridge a substantial part of the expenditure on teaching and administration is defrayed by the colleges.

Second, in your breakdown of the figures according to fields of study, you do not mention medicine, which contributes greatly to research grants in Oxford, Cambridge and the older civic universities.

Third, you do not mention the performance of the teaching, non-specialist colleges of the universities of London and Wales.

For the record, the University College of North Wales obtained in 1974-75 income from research grants and contracts of £742,993 representing 14.6 per cent of total income.

R. BROWN,
School of mathematics and computer science,
University College of North Wales.

Environmental science

Sir,—The report of a recent national conference on environmental education (*THES*, April) stated that the tone of the meeting was against single subject science degrees and in favour of broad multi-disciplinary approaches.

I recently attended a conference on environmental education and training in the United Kingdom organized by the Chemical Society where very different views were expressed. This conference included numerous industrialists who expressed the strong opinion that environmental scientists were of little use to their companies. Newly graduated broadly based environmentalists had such large gaps in their understanding of basic sciences that they could not be placed in any traditional position.

These speakers wanted good analytical chemists, chemical engineers, microbiologists and other specialists who could be combined into multidisciplinary teams to deal with particular environmental problems. The leaders of such teams would need a broad interdisciplinary training but this would be developed by experience, in-company training and experience short courses.

This general industrial view was endorsed by a water authority representative who said that the demand in the water industry was for science specialists, only a handful of environmental science students being required each year (despite many applications from students).

University and polytechnic lecturers present admitted that environmental science courses had been initiated to compensate for the drop in demand for single subject degrees. A review of the courses presented at the conference indicated that many courses were a combination of poorly integrated science and technology with an environmental flavour.

This ties in with the expressed concern over the depth of understanding of science topics among environmental science graduates. A polytechnic lecturer confided that he could teach atmospheric pollution chemistry to his chemistry students but not to his environmental science students whose basic chemistry was too weak. He also stated that final year chemistry students at his polytechnic were finding little difficulty in obtaining jobs, but hardly any environmental science graduates could find suitable employment.

In all fairness, this employment problem should be drawn to the attention of intending environmental science students. If the only way to induce students to study physical sciences is by offering an environmental carrot, then every effort should be made to ensure a thorough grounding in the sciences at the Part I degree level with significant broadening into environmental topics coming only at Part II level.

G. E. CHIVERS,
Tutor,
Centre for Extension Studies,
Loughborough University.

Film hire

Sir,—It was interesting to read Alec Hughes's article "Enlightened Sponsorship Still Needed" (*THES*, April 15) but this is only part of the problem.

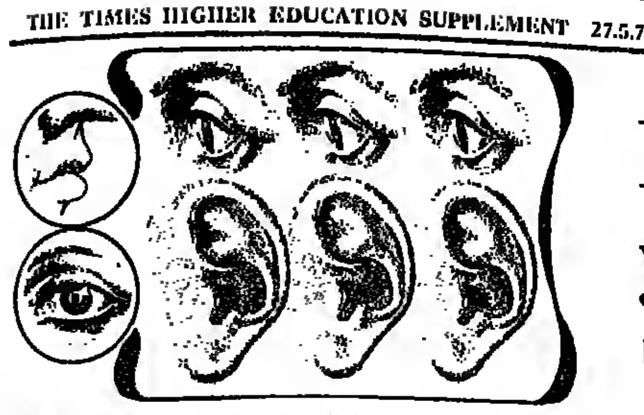
There are many very good American-produced films, particularly in the field of physics, which I discover are impossible to obtain on hire in this country. It would appear that money is accessible primarily to purchase and make available films which already exist and are accepted as being outstanding in their field.

Such films are:
Albert Einstein: The Education of Genius
Galileo: The Challenge of Reason
Physicists: Playing Dice with the Universe

No agency appears to exist to which requests to purchase outstanding films might be made. I accept that such purchases would require to be selective and in cases where the number of possible hirers would be such as to justify the purchase.

This is an area of need for response from, say, the SCET or COI would be valuable.

W. R. M. CRAIG,
Director,
Educational Development Unit,
Paisley College of Technology.



Presenting your witness

by Julian Fulbrook

Industrial tribunals were created in 1964, but their jurisdiction has expanded rapidly in recent years and they are, in effect, "Labour Courts". Applications on issues such as unfair dismissal, redundancy, sex discrimination and equal pay continue to rise steeply, and it is difficult to envisage a personnel manager or trade union official who is not daily enmeshed in making judgments on the law in this area. There is, however, a great deal of misunderstanding.

Your Witness, a video cassette on how to prepare a case for an industrial tribunal should undoubtedly have a substantial market in management training and there is much here too of interest for WEA and TUC courses. It uses a typical example of an unfair dismissal application, which is acted out in a simulated hearing, and then gives commentary and additional material on preparation and presentation generally.

The scriptwriters, Professor R. W. Rideout, professor of labour law at University College, London, and Mr J. McGlyne, senior lecturer in employment law at UWIST, are both eminently qualified to speak on the theoretical aspects of the subject, but in fact the film concentrates on advocacy questions such as procedure and witness presentation. This format is clearly designed to aid the bewildered manager, but it will be less useful to law students or experienced practitioners before tribunals.

The film opens with scenes from a tribunal hearing involving "clocking in". The witness, who is presumably a personnel manager, is having an embarrassing time explaining his past actions. The representative of the worker appellant catches him in contradictory statements and is able to demonstrate ineptness and a neglect of normal industrial practice. When a tribunal lay member intervenes to ask about disciplinary procedures at the company, the witness shows his total ignorance of any such phenomena.

At this point, Professor Rideout appears, stating that the purpose of the film is to prevent such humiliation. Descriptions are given of the tribunal membership, and then sequences provide information on how to avoid hearsay and leading questions, selection of witnesses ("trade unionists and workmates do not make good witnesses for an employer"), proof of evidence, analysis of time limitations, and examination of witnesses.

The legal practitioner will find only revision here, but managers will no doubt be usefully exposed to advocacy lore such as "the art of cross examination does not lie in examining crossly". More helpful to potential witnesses is the injunction to resist being provoked into a damaging outburst as the day wears on. The example in the film—"have you ever had to deal with layabouts?"—is typical.

Minor criticisms can be made of the visual impact of the film. While not wishing to question the telegenic qualities of the authors, there is too much lingering on them sitting square to the camera and speaking very slowly. The graphics of Fred at the factory gate are splendid and more use of such visual illustrations would have led to greater liveliness.

Theoretical knowledge of the technical law and its oral presentation at courts or tribunals are of course very different things. Far too little attention is given to teaching managers, trade unionists or law students about the practical advocacy problems they will face, particularly now that "laymen" have greater access to adjudication machinery.


The set of "Your Witness", the tribunal.

Your Witness
J. McGlyne and R. W. Rideout
24 minute videotape available from Western Sound Visual Ltd, 2 Charles St, Bristol BS1 3NN. £75 excluding VAT.

The author is lecturer in law at the London School of Economics.

Studying the do's and don'ts

For the past five years I have been teaching an introductory mechanics course to electrical engineers, using an individualized system (Keller plan), in which lectures are replaced in the main by a textbook and study guide, and students work at their own pace.

The study guide is divided into units, each of which consists of an introduction, a statement of objectives, notes and comments on the relevant parts of the book, worked examples, problems with solutions, and tests by which each student can assess his own progress. I also provide a brief audiotape with each unit to help those who prefer listening to looking.

Two years ago it occurred to me that some students might need definite help to use this unorthodox system successfully and so I added some advice on "how to study" to the guide. This advice was linked in each unit to the work actually to be done, so that students could immediately practise what they had been advised to do. It was reinforced in subsequent units, again with hints as to how and where to use it. The kind of advice given is briefly indicated in column (1) of the table.

In the first year after I introduced the advice, one of my research students, Vivien Hodgson, interviewed a random sample of 22 of the 54 students on the course to get their reactions. Her first conclusion was rather depressing, in that only one of the 22 freely stated that he had benefited from the advice. At the same time he claimed not to have learnt anything new from it and this reaction turned out to be a key factor in the whole study.

Many students said that if some piece of advice agreed with their already existing habits, then it tended to reinforce them, but if this was not the case then they tended to justify their own methods. However, all had read and considered the merits of the advice before deciding whether to take it or not.

Two pieces of dialogue will serve to illustrate other conclusions. In the first, Vivien asked a student what he thought about the advice on rest periods, which he had referred to. "Well I like to see it actually written down; when I was at school I used to blast away for hours and hours and next morning I couldn't remember a word of it" was the reply.

The second illustrates the student's own uncertainties in his reactions to the study advice.

Vivien: Can you remember any advice other than that on reading?
Student: Can't remember any.
Vivien: In connexion with the one about key points, you took a bit of notice of that?
Student: I wish I had now: I will do from now on I think.

The following year a colleague gave out a questionnaire for me during a lecture period, attended by 44 of the 75 students in the class and 42 returned it. As was to be expected, the sample was slightly biased towards the better students, but the bias was not great.

The detailed reactions to the individual pieces of advice are given in the table. Not unexpectedly, advice specific to the course, as in (a) to (d), was followed more readily than advice of a more general nature, as in (e) to (g), (i), (j). Audiotapes (h) had never been thought of as more than a minority need.

Finally, and perhaps most importantly, did the advice transfer to other courses? Three of Vivien's students stated that they now made lists of key points for all their courses, and a further four thought that the way my course was run helped them to either work on their own or improved their concentration.

Recently one of last year's students, now in his second year, remarked to me that "I did not find that the course helped me then, but now it seems to". When it is remembered that the Keller plan method of work may necessitate the modification and even breaking of some very firmly established and rather passive study habits, these reactions give ground for hope.

(1) Advice	(2) Agree with it	(3) Follow it	(4) 3 as % of 2
(a) Always work over worked examples, don't just read them	39	29	74
(b) Always do progress tests when you come to them	37	28	76
(c) Do some of the problems before looking at the solutions	36	22	61
(d) Use list of objectives as check list of what you have to learn	33	19	58
(e) Take short rest periods while studying	31	17	55
(f) Make lists of key points while note-taking	35	16	46
(g) Discuss difficult passages with fellow students	25	11	44
(h) Use audiotapes if you need them	27	10	37
(i) Look up references in the library	25	9	36
(j) Use a definite strategy when reading (one was suggested)	19	8	42

Lewis Elton

The author is professor and head of the Institute for Educational Technology, Surrey University.

No need for chalk

So many lectures, talks and demonstrations are marred by the misuse of the overhead projector that a film showing how the equipment may be turned into the asset its inventor intended cannot but be a good idea. The wonder is that nobody had done it before.

The National Committee for Audio-Visual Aids set the reels turning to this purpose some months ago. The result *Over to You: Using the OHP* is a 26-minute 16mm colour film that is intended both to introduce the equipment and to demonstrate the splendours of its potential as a teaching aid.

That it does not quite do that is a pity. The pace is slow, too little attention is given to presentation and the mid-Atlantic accents of the commentator had a fair proportion of the audience wondering about his origins rather than the business in hand.

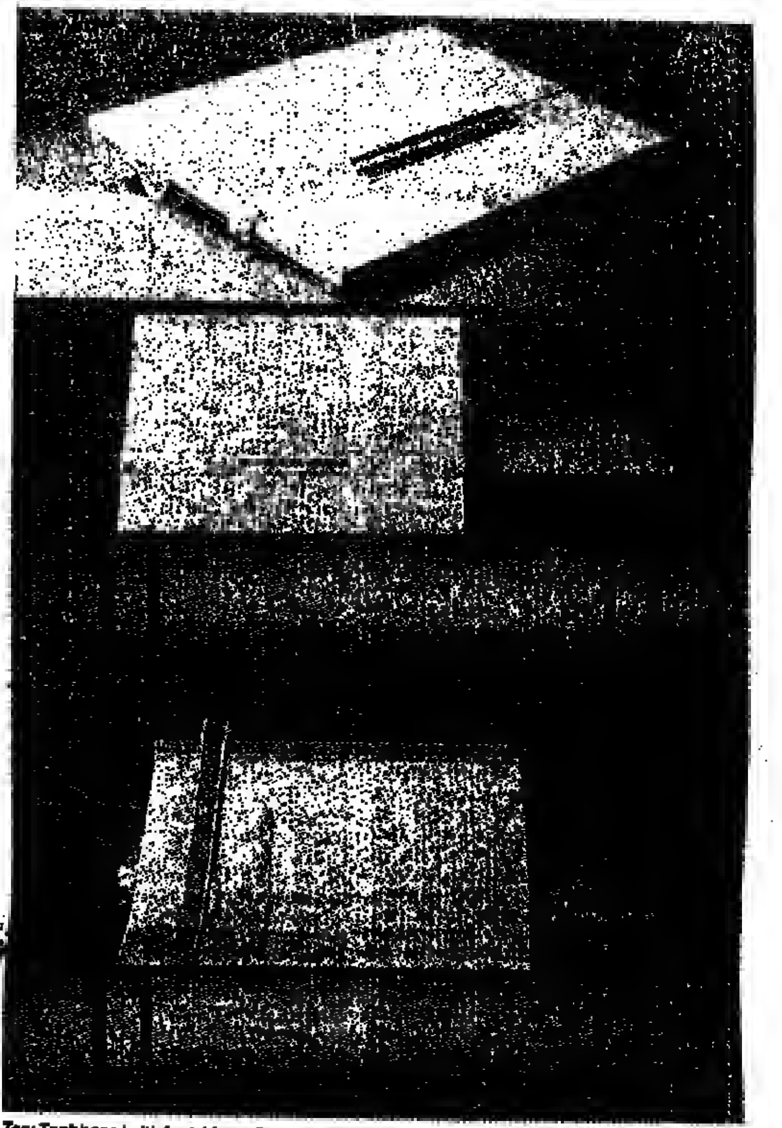
Moreover, one of the multi-reproduction ideas contained in the sequence on transparency preparation might justifiably make authors' hackles rise because the little matter of copyright is ignored; one wonders how the owners of the film rights would view a pirating of their own material.

On the positive side it must be said that *Over to You* is intended to be part of a package. It is for use primarily on training courses, not as a separate entity; a workshop manual and background teaching notes are in preparation and will normally be used with the film.

It offers a useful run-down on the confusingly varied materials available for transparency-making and there are good ideas for the involvement of children and for the establishment of filing systems which, if not taught early, could soon cause chaos in the store cupboards of even the mildly prolific. Moreover, the film conveys the notion of flexibility and makes clear to lecturers and teachers the potential of an inventive turn of mind.

It contains one unspoken gem of advice, a visual nudge that one hopes all trainers will pass on. I refer to the use of the overhead projector by a teacher illustrating a French lesson, where the equipment is used so competently that it seems the most natural thing in the world, as uncomplicated as board and chalk. Apparently the sequence was shot during the course of a genuine lesson and the style was the teacher's own. Would that there were more like her.

Owen Surridge



Can Oakes beat the labyrinth that surrounds AFE?

Gerry Fowler discusses the tasks facing the Oakes committee on the organization of advanced further education, and suggests that the problems require a combination of "localist" and "centralist" solutions

Gordon Oakes, MP: facing powerful interests

The Oakes committee—or working group—on the management and financing of advanced further education (AFE) is too big. And it took too long to secure agreement on its composition. It does not follow from either proposition that it will fail in its task of rationalizing the inefficient structure of control in AFE; but its size, and the delay in establishing it, were both consequences of the power of the interests which have entrenched representation within that structure. That is the best of reasons for not expecting too much of Oakes.

Oakes is not, after all, the first intrepid Theseus to enter the labyrinth of AFE. Some of the threads which his predecessors laid to guide them have become entangled, serving further to confuse each new champion. Meanwhile the Ariadne of this piece, higher education outside the universities, grows old unravished and unrescued. And the greatest mystery of all remains unsolved—who is the Minotaur? To kill the monster, one must first identify it.

There are those who would maintain that the monster is, without doubt, the local education authorities responsible for AFE institutions. Full-time AFE courses—degrees, HNDs, DipHEs, and their equivalent—do not often serve a narrowly local need, however vocational their content, and they usually recruit from at least a regional, if not a national or international catchment area. Even part-time courses at this level, such as the HNC, normally draw their students from beyond the confines of a single local education authority.

Furthermore, the cost of running a very large establishment concerned primarily with higher education, and often with expensive technological higher education, is such that few individual local authorities could contemplate it if they had to rely solely on their normal sources of income—mainly rates, and rate support grant. We therefore have the "pooling" system, in effect a 100 per cent grant for that proportion of the establishment's work which falls within the definition of poolable AFE agreed by local authorities collectively. It is not, of course a central government grant, but a cross-subsidy system, sharing among all l.e.a.s the burden which would otherwise fall disproportionately heavily on some of them.

One effect of this is that the phrase "maintaining authority", when applied to the l.e.a. in whose area a polytechnic or other powerful AFE institution is located, no longer means what it seems to mean. All l.e.a.s collectively maintain the college. Another effect is to remove any incentive to sound financial control at local level. That does not mean that it is not exercised; Birmingham, for example, scrutinizes expenditure by its polytechnic very closely. But the absence of the normal sanctions against financial laxity—avoidable rate rises and consequent political unpopularity—means that there is no guarantee that this will happen.

To put the same point another way, management responsibility for a polytechnic or college resides with its internal committees and officers, its governing body, and with its local education authority, which should determine its "general educational character" and what can be spent on developing it. But financial responsibility—that is to say, the task of picking up the bill—resides with all local education authorities collectively, with the pooling committee restricting itself to concern with the formula by which they will pay, and the definition what they will pay for.

The Local Authorities Higher Education Committee (LAHEC) was one attempt to draw the two strands together at national level, but apart from seeking to induce AFE institutions to conform to norms for staff: student ratios (an attempt not hitherto attended by conspicuous success), it accomplished little.

But what else could LAHEC have done? It is tempting to suggest that it might have been a local authorities' equivalent to the University Grants Committee, standing in the same relationship to local education authorities as the UGC does to the Department of Education and Science and in the same relationship to AFE institutions (whether all or some) as that committee does to the universities. It would thus have served simultaneously as a mechanism for planning the development of public sector higher education, by guidance rather than by *fiat*, and as a financing agency, levying funds from all local education authorities and disbursing them to institutions within its remit.

Yet if we say this, and this alone, doubts at once arise. If the only link between a polytechnic and the local government system were through a single local authority committee at national level, composed of representatives appointed by the l.e.a.s collectively, then it is not obvious that the link would be worth preserving. After all, if the l.e.a.s throw up men and women with expertise in the management and the content of higher education, it is by accident. Why, then, have a specifically local authority committee at all?

Frankly, I believe that if we look to the polytechnics alone, it is very hard to provide a theoretical answer to that question which makes much sense. The 1966 White Paper on polytechnics and other colleges, like Tony Crosland's Woolwich speech the year before, sought to answer it in terms of "social responsibility" and "social control".

This is not the place to discuss at length the cash value of those phrases, but they seem to refer to a system of government which ensures that institutions seek to identify the needs of the wider society in which they are set (including those of its "wealth-creating" sectors), and to meet them. But it is obscure why control by local authorities specifically should be thought to be such a system.

Historical roots

If we go back to 1965-66 it is easy to provide an answer, not in theoretical but in practical terms. The local authorities had been robbed of the CATs, which they had fostered and developed, but which were following the traditional route of escape into the bosom of the UGC. Some l.e.a.s (not all Conservative) were alarmed by what they saw as increasing central government interference in their own functions, not least in respect of secondary education.

The Weaver Report, recommending a loosening of l.e.a.s' day-to-day management control of colleges of education, was about to appear. There was a powerful argument for not adding insult to injury by suggesting that the new polytechnics should also move outside the local authority sector.

The colleges coming together to form the polytechnics were after all, except in Inner London, the property of their l.e.a.s. One of the great glories of the further education system has been its constant ability to grow a new "top" of advanced work within the local authority sector. Yet it remains interesting to speculate what our higher education system would now look like if the new polytechnics had been hived off to form a sector of their own, if the Robbins plan for the colleges of education—moving them firmly into the university ambit—had been implemented, and if tight controls had been imposed on the growth of AFE courses in remaining local authority institutions.

None of this happened, except to some degree the third part of the hypothesis. Since then the new "top" of the FE structure has grown apace, and it is now impossible to turn back the clock.

It will by now be apparent that it is unfair to blame the l.e.a.s for weaknesses in the structure of control and funding of AFE. It was created by, or with the support of, central government, in conditions where the interests of all parties (central and local government, further education teachers, college principals and directors, and the students themselves) coincided.

It is attuned to the rapid expansion of AFE. The l.e.a.s have been responsible neither for government policy changes, nor for the present economic stringency, nor for shifts in the social and demographic pattern of demand. It is the interests of central government, and of the clients of the further education system, which have changed, and are no longer well served by the structure of control.

If the Oakes Committee were in the business of slaying monsters, it would therefore do well to remember that the root cause of the troubles of Theseus and the Athenians was not the Minotaur, but Minos himself. DES's own attempts to introduce control mechanisms to a system geared essentially to uncontrolled expansion are thus worthy of examination.

The management interests of central government are, if we neglect the blunt financial instrument of the rate support grant, mediated through the inspectorate. A major element in the system is the use made by them of what are known as "Pilkington numbers" (after the chairman of the committee which devised them).

In general, any AFE course should recruit at least 15 students in its first year, and 24 students in every successive year of its operation. If it does not, then the regional staff inspector must consider whether the course should be closed and the students moved elsewhere.

Management by course control is of its nature fragmented and incoherent. In giving value for money it is crucial that the institution, or the faculty, or the department within it, should be able to make optimum use of available resources. If a course which fails to recruit its quota stands alongside other courses at an advanced level, using the same staff and physical resources, then marginal financial savings in recurrent expenditure stemming from the closure of the course may be gained at the cost of otherwise avoidable under-utilization of buildings, equipment and staff.

By contrast, a free-standing course, unsupported by other provision in the same academic area, may recruit well, but be singularly uneconomic in its claim upon institutional resources. This would not therefore be a sound management system even if it were operated by those whose principal expertise lay in educational resource management. It is no criticism of the inspectorate to point out that it was not for that expertise that most of its members were recruited.

Before any full-time AFE course can run at all, it needs the approval of the Secretary of State, as well as of the appropriate validating body. This power is again exercised through the inspectorate, with the regional staff inspector as the point of contact with the institution. Once again, this is a crude system for controlling individual courses rather than for optimising resource utilization.

Where detailed course content is a matter for the college in the first instance (as with CNAA degrees), it may be exercised before that content has been decided, so that it is of its nature a quantitative rather than qualitative control. Further, power is here exercised essentially by non-elected officers of the Department, rather than by those who are either academically or publicly accountable.

Regional machinery

There is, of course, a public component in the system of course control, the regional advisory councils. It is an open secret that regional staff inspectors are often glad to be able to persuade RACs to refuse approval, thus avoiding the odium of doing so themselves.

The RAC system is, in any case, based on competitive bidding by colleges and l.e.a.s, with horse-trading between the vested interests represented on their committees. Nothing has happened about the third Pilkington report, of 1969, which proposed that RACs should prepare costed development plans for further education within their areas. The system is therefore sound in terms neither of educational planning nor of resource management.

In 1975, CLEA proposed that the regional machinery should be strengthened through the creation of new advisory councils, which would undertake the forward planning and development function hitherto neglected by most RACs. Some new regional machinery is in any event essential, if only to replace in teacher education the old university-based Area Training Organizations, and to coordinate the in-service education and training of teachers.

Unfortunately, the CLEA proposals would have left the divorce between the responsibility for funding AFE and other management responsibility unchanged. Further they took inadequate account of the notional dimension of much AFE provision, whether that be measured by student recruitment or by the employment for which it is designed to fit students. It was for these reasons that, when I was Minister of State in the Department, I set in train the events that led to the establishment of the Oakes committee.

How are these difficulties to be overcome? One must start from the premise that Oakes would be unwise to recommend the removal of AFE or any part of it from the local authority sector. What might have been practicable a decade ago is no longer practicable. So it look to a different general structure of government into which it might fit, however desirable it might be.

Were there serious proposals for devolution of some central government functions to regional authorities in England, with a single tier of local government below them, responsibility for AFE might reside at the regional level if there was some central coordinating mechanism. But no such proposals presently exist.

It would be possible to adopt a purely "localist" solution, with l.e.a.s resuming direct financial responsibility for all AFE in their own institutions. Costs would lie where they arose, with no "pooling". This would bring together funding and management responsibilities, and—were strong regional and national AFE planning councils established, without whose approval institutions could not expand into new academic areas—such a system would not be incompatible with the demands of the 1980s.

In my view it founders on a conspicuous rock. Some small l.e.a.s (for example, Kingston upon Thames) might find it impossible to continue to maintain out of their own resources their institutions, whatever their educational excellence.

I am therefore driven to advocate a solution which combines both "localist" and "centralist" elements. At the local level l.e.a.s might continue to appoint a third or so of the members of governing bodies, bear the whole financial responsibility for non-advanced provision and for advanced part-time courses, and equally fund through "pooling" the cost of all advanced work in institutions where this is less than a fixed percentage of total work (say 40 per cent or 50 per cent).

Not only would the l.e.a.s thus keep some stake in all institutions with AFE work, but if it maintained an institution which was not primarily concerned with higher education, it would have the most powerful incentive to prevent it moving further into that area, at great cost to the ratepayers. That is precisely what the present arrangements of the FE system lack; it would not have been appropriate in the 1960s.

Centrally, this proposal would require the creation of a new body, responsible to the local authority associations, charged with the establishment of expenditure norms, through regional agencies, receiving, discussing and approving development plans for those institutions primarily concerned with higher education (as defined) and allocating funds to them for the fulfilment of these plans.

It would, were it to perform its functions effectively, differ from LAHEC in having within its membership substantial representation for those teaching in AFE, for academics and educationists, and for employing interests—industry, commerce and the public sector—and the professional institutions.

Such a committee might derive its funds from an "informal" (i.e. non-statutory) precept upon l.e.a.s, a variation of "pooling", but preferably on a simpler formula related only to an authority's school population. Alternatively, it could receive after negotiation a block grant from the Department (like the UGC), which would ensure that the interests of central government were properly represented within the system.

At the same time, funding, planning and management responsibility would be brought together throughout the FE system—either in the central committee, for major AFE institutions, or in the individual l.e.a., responsible for funding courses which essentially serve local need.

Compromises between these two proposals are possible. Some might for example believe that the fundamental weakness of the first could be overcome were there (say) an 80 per cent grant from central government in respect of all work which is at present poolable. What is certain is that any solution must be radical if it is to satisfy the demands we shall make over the next decade of the FE system.

But can the Oakes committee produce a radical solution? Given the powerful representation on it of those with a vested interest in the maintenance of the present system, "maintaining" l.e.a.s and FE teachers alike, I doubt it.

The author is Labour MP for Wrekin, and was Minister of State responsible for higher education from 1974 to 1976.

How quantum mechanics looks over the edge of the universe

Stephen Hawking describes the latest thinking about the nature of "black holes"

Although the term "black holes" was not coined until 1969, the underlying idea was first proposed by the French Marquis de Laplace in 1798. Writing in a German academic journal (possibly because of the disturbed state of France at the time), he pointed out that a body of the same density as the sun, but about 250 times the diameter, would have such a strong gravitational field at its surface that any light it emitted would not be able to escape, but would be dragged back on to the star.

Laplace suggested that "there exists, in the immensity of space, opaque bodies as considerable in magnitude, and perhaps equally as numerous as the stars", a prediction which is remarkably close to what we believe today. However, the prediction can be classed only as a speculation, because there was not at that time a consistent theory of the interaction of light with gravitational fields; this did not come until 1915, when Einstein propounded his general theory of relativity.

Einstein himself did not recognize the implications of his theory for massive dense bodies; these were pointed out by Robert Oppenheimer (later, to be famous in connexion with the atom bomb) and his collaborators in 1939, but no one took much notice until the 1960s.

It was then generally realized that a star of more than a few solar masses which had burnt up all its nuclear fuel would collapse under its own gravity until it reached the stage that Laplace had predicted, at which the gravitational field became so strong that no further light could escape.

An observer at a distance watching the collapse of the star would see it approaching a certain critical size, and becoming increasingly redder and dimmer, until it was completely invisible, leaving behind a "black hole" in space. This hole would continue to exert the same gravitational pull as the body that collapsed to make it, and objects or unwary astronauts who came too close would be dragged in.

Inside the black hole, the general theory of relativity predicted that the material of the star would continue to collapse until it all met in the centre to produce what is called a "singularity", a point where the whole star was crushed to zero volume. Such a singularity would be an "edge" to the universe, a place where our usual notions of space and time come to an end.

Since around 1965 astronomers have been looking for observational evidence of black holes. Of course black holes do not emit any light of their own (apart from an effect that will be described below), but one could hope to detect them from their gravitational effect on nearby stars and matter.

In 1972 the American satellite UHURU detected a strong and rapidly fluctuating source of X-rays called Cygnus X-1. This turned out to consist of a large normal star in orbit around a small massive object that could not be seen. Material from the outer layers of the large star seemed to be blown off and to fall onto or into the compact object.

As it approached the compact object it developed a spiral motion like water running out of a bath, and it became very hot, emitting the observed X-rays. Although alternative explanations are not completely ruled out, it seems very probable that the compact body is a black hole of about five or 10 times the mass of the sun.

There is also some observational evidence indicating that there may be black holes of a few thousand solar masses at the centres of globular clusters of stars, and that black holes of 100 million solar masses or so may be the energy source that powers the quasars, extremely distant and luminous radio sources.

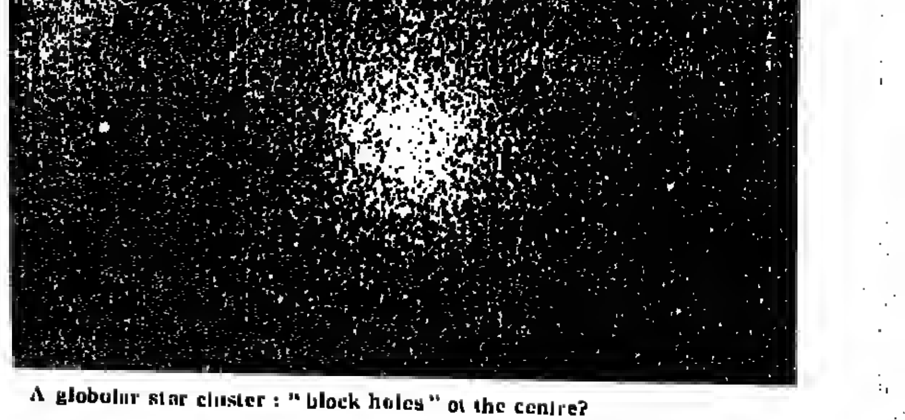
Until about three years ago it was thought that the black holes were complete dead ends, that the matter and energy which fell into a black hole were lost forever and could not be recovered in any form. However, it was found that when quantum mechanical effects were taken into account, so-called black holes were not completely black after all—radiation would leak out of them at a steady rate.

This is due to the famous Heisenberg uncertainty principle, which says that one cannot simultaneously measure accurately both the position and the velocity of a particle, and that the energy of a system cannot be accurately defined over a short interval of time.

It follows from this that even in ordinary "empty" space with zero energy density, there can be pairs of particles and anti-particles which come into existence together at some point in space time, move apart, and then come together again and annihilate each other within the time interval allowed by the uncertainty principle.

Some particle-antiparticle pairs are said to be "virtual" because, unlike "real" particle pairs, they cannot be observed directly with a particle detector; but their indirect effects have been measured in a number of experiments over the last 30 years.

When a black hole is present, one member of a virtual particle antiparticle may fall into the hole, leaving the other member without a partner with whom to annihilate. It



A globular star cluster: "black holes" at the centre?

may follow its mate into the black hole, but it may also escape to *infinity*.

To an observer at a distance from the black hole, this particle *will* black hole. Indeed, one can regard appear to have been emitted by the the particle (or antiparticle) that fell into the black hole as being an antiparticle (or particle) travelling backwards in time and coming out of the hole. When it reached the point at which the particle-antiparticle pair first appeared, it would be scattered by the gravitational field into travelling forward in time.

Thus there is a sense in which one can regard the emitted particle as having come from the singularity—the edge of space time—inside the black hole. This gives the emission from black holes an extra degree of randomness or unpredictability over and above that normally associated with quantum mechanics.

The rate at which a black hole leaks radiation depends on its size. For a black hole of the mass of the sun the rate is so low that the effect would be quite undetectable; however there may also be very much smaller black holes which might have been formed in the very hot and dense conditions thought to have existed in the early stages of the universe soon after the "big bang".

Such "primordial" black holes might have masses around 100 million tons (the mass of a mountain) and sizes of about one 10 millionth of an inch (the size of an elementary particle). They would be emitting radiation in the form of gamma rays and high energy particles at the rate of about 6,000 megawatts.

As they radiated energy, their mass would decrease and the rate of emission go up. Eventually they would disappear completely in a tremendous explosion equivalent to many millions of H-bombs.

Fortunately there is not much chance of such an explosion happening near the Earth; but astronomers are now looking for evidence of their occurrence within a few light years. Whether they will be successful will depend both on whether the conditions in the early universe were such as to produce a significant number of primordial black holes, and on the details of how the final explosion occurs.

Even if they do not find anything, the quantum mechanical emission from black holes will still be very important conceptually, as it completely changes our notions of black holes, and perhaps even of space-time.

The author is reader in gravitational physics at Cambridge University.

Dangers of over-emphasizing language skills

Ian McCallum discusses the results of a survey of the abilities of students in further education

Recent debates about the need for men and women with educations appropriate to the needs of an industrial society should, if nothing else, have focused attention upon our lamentable ignorance about the men and women in colleges of further and higher education.

For a variety of reasons, educational researchers rarely show interest in the field of further education. Schools or universities, with their relatively stable populations, can provide samples from which it is less difficult to generalize than is the case with samples drawn from the heterogeneous population in colleges of further or higher education.

The multitude of courses offered by these colleges, with their different modes of attendance and sometimes high wastage rates, can add an unwelcome complication to the difficulties facing the researcher.

A survey being conducted by the staff of the Garnett College Research Unit, and supported by a grant from the Social Science Research Council, promises to provide insight into some of the characteristics of students in colleges of further education. Fourteen items of information, of which ten are about aptitudes or abilities, have so far been recorded about more than 3,000 students attending more than 90 courses at 12 colleges. Further data regarding examination successes will be added later.

In many ways the findings have been close to what might have been expected, but the magnitude of the differences between the abilities of students on the same, or similar, courses, came as a surprise. Scores on a test of vocabulary were used to obtain an indication of levels of verbal comprehension and the very low scores which many craft students obtained on this test were in contrast to the unexpectedly high scores obtained by a small proportion of their classmates.

Comparatively high mean scores were obtained by craft students on tests of non-verbal abilities. The haphazard nature of factors which contribute to the selection of craft students probably leads to many further education lecturers having classes with a wider range of abilities than would be acceptable to school-teachers.

An opinion voiced by many lecturers is that their most intelligent craft students find their courses too undemanding and so become bored and disruptive. The behaviour of these able students not only adds to the difficulty of teaching the class, but not infrequently leads to their ultimate failure.

The differences between the levels of "verbal comprehension" found among students suggests that the provision of classes for the improvement of the "communication skills" of craft students sometimes demonstrates a rather simplistic view of the problems likely to be faced by teachers.

It is not uncommon for a young arts graduate to be expected to develop communication skills in a class of craft students which may include two or three students with O level English language and others who are barely literate. There is an urgent need for the theorists to take into account the wide range of abilities likely to be encountered by those who have to put the theories into practice.

Some of the survey findings support the notion that our society associates education with language skills. In a comparison of data from teacher training students with data from groups of technicians and craft students, the training college students invariably obtained significantly higher scores on measures of verbal comprehension, general knowledge and arithmetic.

No significant differences were found between measures of non-verbal intelligence, but each group of technician or craft students obtained significantly higher spatial test scores than the teacher training students.

Table 1 shows mean scores and standard deviations obtained on five of the sub-tests by groups of students attending seven different colleges. Data from students for whom English is a second language were excluded from the analysis in order not to introduce distortions which would reflect the proportion of those students in each group. The inclusion of such data would have reduced the mean scores on all the tests except arithmetic, which would have increased.

These findings offer very clear evidence to support suspicions—long held by some teachers—that we may be so preoccupied with using words that the value of thinking with "the other side of the brain," so vital for the development of complex ideas goes unrecognized.

Perhaps the relative abilities of our teachers is indicative of the values attached to some abilities and the need for greater recognition to be given to the importance of non-verbal abilities. The development of the language and literacy skills of technical students is, of course, important, but too strong an emphasis by those who think mainly in these terms may hinder rather than advance the education of those students.

A comparison of data provided by one college about its ONC and HNC students in the general field of biology with norms for university undergraduates shows that 11 per cent of the technical college students came in the top 30 per cent category on the verbal/educational items, but 49 per cent came in the corresponding category on the spatial/non-verbal items.

Students were also asked to record the occupation of the head of the household in which they spent most of their childhood. This information was then coded in accordance with the method employed for social grading on the national readership survey by the Joint Industry Committee for National Readership Surveys.

Students were, of course, at liberty to withhold the information needed, and a small percentage did so.

Students from socio-economic status groups A and B were over-represented on all except craft and technician courses, on which they were very slightly under-represented. Those from semi-skilled and unskilled working class households (Grade D) were under-represented on all courses.

An important aspect of these findings is the evidence of a relationship between social status and career choice. It would be of interest to know how school teachers, drawn from predominantly middle-class homes, view careers for their pupils in fields where those from backgrounds similar to their own are so under-represented.

Although the survey is only partly completed, and much data remains to be interpreted, enough information has emerged to cast doubt upon some well-established ideas. The overall distribution of students by "socio-economic status" provides little evidence to support the idea that further education provides an alternative educational route for students from the lower socio-economic status groups.

Some courses, and perhaps some colleges, have populations in which the highest status groups are considerably over-represented. It may, therefore, be misleading to refer to the opportunities available to students from lower status groups without referring to the specific courses concerned.

The author is acting head of the research unit in further education at Garnett College, London.

Mean Scores and Standard Deviations of Students

		CRAFT STUDENTS					TECHNICIANS	
	Teacher Training College Students	Technical College A	Technical College B	Technical College C	Technical College D	Technical College D	Technical College E	Technical College F
Sample Size	117	91	84	208	132	122	80	74
Verbal Comprehension (vocabulary)	8.30 (2.59)	*— 5.19 (2.25)	*— 4.05 (1.99)	*— 4.90 (2.28)	*— 4.73 (2.57)	*— 4.73 (2.20)	*— 5.70 (2.35)	*— 6.00 (2.40)
General Knowledge	5.34 (1.88)	*— 3.87 (1.67)	*— 3.79 (1.66)	*— 4.33 (2.02)	*— 3.88 (1.76)	*— 3.80 (2.04)	*— 4.47 (1.88)	*— 4.40 (1.94)
Arithmetic	4.02 (1.88)	*— 2.96 (1.43)	*— 3.05 (1.49)	*— 3.15 (1.52)	*— 3.14 (1.54)	*— 3.15 (1.57)	3.94 (1.87)	3.47 (1.90)
Non-verbal Intelligence	9.05 (2.9t)	8.56 (2.53)	8.82 (2.74)	8.86 (2.63)	8.39 (2.46)	9.12 (2.38)	9.61 (2.00)	9.20 (2.27)
Spatial Ability	3.07 (2.01)	*+ 3.95 (2.09)	*+ 3.76 (2.24)	*+ 4.05 (2.17)	*+ 4.19 (2.20)	*+ 4.05 (2.18)	*+ 5.52 (1.95)	*+ 4.20 (2.05)

*— significantly lower than teacher training college students (P<.05)
*+ significantly higher than teacher training college students (P<.05)
(standard deviation shown in brackets)

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Union accepts New York dismissals as 'inevitable'

The dismissal of over 1,000 lecturers at the City University of New York last year was probably inevitable, given New York's financial crisis, an investigating committee of the American Association of University Professors has concluded.

But the university did not follow the proper procedures, and did not give enough notice to faculty members. The committee hoped there would not be any more budget cuts at the university, though it was not sanguine. It also warned that the same kind of "drift" was occurring in 1977. "A second round of terminations with utterly inadequate notice will not be excusable", it said.

Some of those laid off at CUNY received only 30 days' notice, the report said. Conditions of uncertainty mitigated the delay in facing the grim facts but the dismissals "surely represent the most massive abrupt terminations in the annals of the association, and, probably, of higher education in the United States."

The ad hoc committee did not investigate individual cases. It found that the retrenchment was accompanied without terminating the appointment of any full-time teacher with tenure as recognized by the university's by-laws. But a number of tenured counsellors, technicians and administrative officers were dismissed.

It also said the faculty participation in the decisions affecting the 18-college university as a whole were "intrinsically and chronically inadequate". At college level the regulations were satisfactory, but these structures either did not sustain the weight of events or were abandoned by college presidents in the crisis of 1976.

The report said: "There has never been a case where a major university first expanded and then deflated so rapidly. The deflation has meant severe hardships, not only for the professors . . . but also for the students who have not been able to pursue their education, for thousands of other staff members who have lost their jobs, for the very fabric of colleges that have meant so much to generations of aspiring New Yorkers."

A believer in standards

Robert Hutchins, one of America's most influential figures in the development of higher education, and a man who stamped his mould on the University of Chicago, has died in California at the age of 78.

Mr Hutchins became President of the University of California at the age of 30, and during his 22 years there he carried through an educational revolution. He attacked what he saw as the trivialisation of American higher education with its undue emphasis on sports, fraternities and extra-curricular activities. He was also strongly opposed to vocationalism in universities.

He brought to Chicago a Great Books Programme, which included more than 50 writers and 200 books and leaned heavily on the Ancient Greeks and Romans. St John's College, Annapolis, is today still running a similar programme (THES April 29).

His reign at Chicago was marked by controversy. Students needed no high school credits for admission, provided they could pass an admissions test; they were not forced to attend classes and could take their final examinations any time they felt prepared for them. Football was abolished at the university (it has since been restored).

Carter aide leaves Chicago

Mary Berry, Assistant Secretary for Education, has resigned as Chancellor of the University of Colorado to end allegations of a "conflict of responsibilities".

Dr Berry, the highest education official after Mr Joseph Califano, the Secretary, has been on a year's leave of absence from the university while she is working in Washington.

This arrangement was approved by the university's president, but it was never popular with the teaching staff who believed the chancellorship should be a full-time job.

Dr Berry originally insisted that she would not stay more than a year in Washington, but recently has been talking about remaining for as long as she was needed.

In a statement Dr Berry said: "The allegations of conflict of responsibilities and dual salaries are utterly false. However, these allegations have resulted in threats of reprisal against the university as well as tension within my Washington office. I find this an untenable situation."

Her resignation will not please the university which appointed her as Chancellor only last summer after one of the most expensive and lengthy selection procedures it has ever undertaken.

Ombudsman first

The world's first Ombudsman Institute is to be established at the University of Alberta. It will coordinate research on the function of an Ombudsman, catalogue information on the institution, organize seminars and possibly publish an Ombudsman journal.

Canada was host to the first International Ombudsman Conference last year, attended by Ombudsmen from 18 countries. The institute, in the university's faculty of law, will be financed mainly by a private foundation.

Apartheid sit-in

Police arrested 294 students at Stanford University earlier this month during a remarkably amicable demonstration against the university's policy over shares it holds in companies investing in South Africa. The students occupied a university building. Their mass arrest was the largest ever at Stanford.

Argument over South African shares has been steadily increasing at Stanford, and the senate has held hearings on the university's investment policies.

Harvard and Radcliffe sign accord

Harvard University and its sister institution, Radcliffe College, have renegotiated the relationship between them. The new agreement reaffirms Radcliffe's corporate status, emphasizes that the college will retain ownership of all its property and restores to it full financial responsibility for its own operations.

The agreement replaces the 1943 one, which originally opened Harvard's undergraduate courses to women students, and also the 1971 amendment to it.

Under the new agreement Harvard will be responsible for all undergraduate education for men and women, and Radcliffe will turn over to the university all income relating to this function.

Some programmes will be "Radcliffe-retained", over which the women's college will have control. And two programmes will be jointly funded and administered: a new research unit dealing with the education and role of women and the Harvard-Radcliffe Office for the Arts.

Undergraduate women will continue to be admitted to and enrolled in Radcliffe, and will thereby be enrolled at Harvard "with all the rights and privileges accorded to Harvard College enrolment". The joint admissions office will continue to admit undergraduates to their respective colleges under an equal access admissions policy.

Although Harvard and Radcliffe remain two separate institutions, they are so intertwined that there is now virtually complete coeducation in Cambridge. There have been movements to reassert the independence of women's colleges in America, but this new agreement strengthens rather than weakens the link between the two.

Annenberg arts centre switch

A $40m fine arts centre which was abruptly withdrawn by its potential donor a few months ago from New York's Metropolitan Museum of Art may go instead to the University of Pennsylvania.

The centre was proposed for the Metropolitan by Mr Walter Annenberg, a former American ambassador to Britain. But he cancelled the offer when the museum began to question the plans for the centre.

Pennsylvania, which Mr Annenberg attended, has now proposed a similar, though broader, programme for "visual education". It already has an Annenberg School of Communications and now proposes a centre for the "recording, disseminating, and educational utilization of great achievements in art, science, technology and other fields".

This differs slightly from the proposed Metropolitan centre which was to disseminate information about the fine arts to mass audiences using television and films.

Major boosts for environmentalists

Universities all over America are being encouraged to contribute more to research into the environment. The Ford Foundation has just announced a grant of $750,000 to stimulate university research in this field. The National Science Foundation will give grants to over 500 students this summer to pay for environmental projects, and more and more government money is available for specific environmental research projects.

The Ford money is to analyze the role state governments are playing in environmental management. The Foundation said states would be making vital decisions in the next five to 10 years in this field, and it chided universities for contributing so little up till now.

It hopes the 10 to 15 competitive grants will encourage analysis of pollution control, the use and conservation of energy resources, land-use regulation and population growth, and the management of solid wastes and hazardous materials.

In particular Ford wants to encourage projects that do not fit traditional research patterns, and also experimental ways of getting universities to work with government agencies. It suggests, for example, teachers working in state agencies for a year, periodic university-government seminars and university advisory panels that would regularly meet state agencies.

The National Science Foundation is giving almost $1m to 64 environmental projects planned and directed by students. This comes under a scheme called the Student-Originated Studies programme, which encourages students to tackle real-life research problems through interdisciplinary team work. Past independent student work has proved very successful: the scheme has been going now seven years.

Each project is conducted under the leadership of a student who serves as its director. Students, mainly undergraduates, spend 10 or 12 weeks on the project, usually during the summer break, and are paid up to $90 a week by the National Science Foundation.

Some 278 projects were submitted to the Foundation by students this year. Review panels comprising students and lecturers picked 64 for funding: 18 are directed by women.

Those going ahead this summer include:

Analysing the Alabama loblolly pine's bark. The pine is used for making paper, and the bark accumulates in large quantities. Alabama University students will investigate processes for conversion of the bark's constituents into commercial chemicals.

A survey of the transport needs of the elderly in urban and rural areas by Northern Kentucky University students.

A study of the use of the water hyacinth as a purifying agent in waste water treatment, livestock feed, a source of methane gas and as a fertilizer. This is being done by students at Sam Houston State University in Texas.

Apart from such special projects, and despite the Ford Foundation's strictures, universities have contributed significantly to the environmental movement in the United States. Many of the teachers in science departments have played important roles in testifying before Congress and government agencies. Many long-term environmental research projects are begun each year.

One university that has been in the forefront is the University of California at Los Angeles. Four years ago it began an interdisciplinary graduate course to train "environment doctors" who could tackle the environmental ills of society much as a general practitioner deals with human illnesses. The course has been widely praised, and those who have completed it have quickly gone on to good jobs.

The aim of the course, said Professor Willard Libby, one of its originators, is to develop "skilled professionals who will be to the environment what the broad-gauge physician is to the human [illegible]. They will know how one environmental ill interacts with the other, anticipate and diagnose danger signals, and consult the appropriate specialists in other fields."

Students enrolling in the programme must have a Bachelor's degree in the natural sciences or in engineering and must earn a Master's degree in one of these fields. The "environment doctor" training begins from this base of established competence.

In the first year students study a range of subjects to give them breadth—the physical sciences, engineering, law, economics and politics. The idea is to give the future general practitioner a wide enough background to be able to decide, when confronted with a case, whether to go ahead on his own or ask for others' help.

Next comes the "clinical" part of the curriculum. Students practise solving actual problems as part of an interdisciplinary research team, spending up to two years away from the campus working in industry or with a government agency.

Since the beginning of the programme, students have built up a library of case studies dealing with such things as air pollution and city planning, the future of mountain recreation areas, off-shore nuclear power plant sites, population and energy prospects for Los Angeles, oil and coal development.

There are now between 50 and 60 doctoral students in the environmental science and engineering course, and about 20 are admitted each year. There is strong competition for the graduates—and many more offers of internships for those taking the course have been made once industry has found that students are not just another group of "troublesome environmentalists".

Courses such as the UCLA one are likely to become more common on campuses all over America. Schools are already teaching courses broadly described as "environmental" and government money supports this.

Blacks 'just as intelligent as whites'

Blacks must cast off their intellectual inferiority complex and reject the racist insinuation that they were not the intellectual peers of white people, one of the top blacks in the government said in a recent Commencement Address at Howard University in Washington, one of America's best black universities.

Mr Wade McCree, the Solicitor General, said blacks' self-doubt and deprecation had been fed by the theories of Professor Arthur Jensen and his disciples that black people were genetically less well endowed for "certain so-called higher forms of mental activity" than were whites.

The expectation that blacks would not measure up had become a self-fulfilling prophecy, Mr McCree said. This was shown by comparative college and professional school admission tests scores and by civil service and private sector employment examination results.

"I am familiar with the conventional explanation that the depressed environment of America's black population explains the difference, but I cannot accept this rationalization as the full response. We must cast off the psychological shackles that still inhibit us just as we shed our physical chains at emancipation over a century ago", he said.

He said blacks should not tolerate lackadaisical performance in school. "Standard English is the American standard, and other people who were total strangers to the English language have mastered it in a single generation. We must reject the condescending perpetuation of second-class status that results from teaching our children 'black English'."

Meanwhile, a new book has just been published by Dr Paul Ehrlich, the Stanford University ecologist, which rebuts, point by point, the contention that blacks are intellectually inferior to whites. The book, *The Race Bomb: Skin Colour, Prejudice and Intelligence* attacks in particular the theories of Professor Jensen and Professor William Shockley.

Dr Ehrlich and his co-author, Dr Shirley Feldman, a Stanford psychologist, criticize the exclusive reliance on intelligence tests, which they say favour those brought up in more privileged environments. It is no surprise, therefore, that whites score higher than blacks, the advantaged do better than the poor, and the city-bred surpass their country-cousins.

The authors say parents should not assume that scores reflect innate ability that is fixed and unmodifiable. Furthermore, while IQ tests do predict academic performance with modest success, they are far from perfect.

The book recommends getting rid of nearly all mass testing, and allowing individual testing under professional supervision only when special circumstances warrant it.

Professor Shockley has often asked the National Academy of Sciences to sponsor studies of the relative roles of heredity and environment in determining intelligence. But the political unpopularity of this research has always ensured a refusal by the Academy. Ehrlich and Feldman say no "radical" research should be banned, "no matter how wrong-headed it may seem".

But, they contend, Professor Shockley's proposal does not qualify as useful research.

France

More autonomy urged for the regions

from Guy Neave

PARIS

A controversial report by the Parliamentary Committee for Social, Cultural and Family Affairs has called for the setting up of regional committees of higher education.

The report also urges the government to put into effect those sections of the 1968 *Loi d'Orientation* governing the running of French universities that have hitherto remained unimplemented.

This proposal will add fuel to a conflagration already of no mean proportions. The past two weeks have seen the guideline law savaged by Mme Alice Saunier-Seïté, Secretary of State for Higher Education, and criticized by M Jacques Chirac, Mayor of Paris and leader of the right-wing *Rassemblement pour la Republique* (RPR). It has also been attacked by many figures in the university world.

Passed in the aftermath of the student uprising, the law instituted university autonomy as well as making general recommendations for the future development of higher education in France.

To many people, not least the Secretary of State, it is now looked upon as an obstacle to the reforms currently in train. It appears, for example, to be in fundamental conflict with the proposal to set up national validation boards to vet university degree courses (*THES*, April 30).

Attempts have been made to block this development by citing the guideline law. This is currently the tactic of the Socialist *Syndicat General de l'Enseignement National*. The *Conseil d'Etat*, France's supreme administrative court, is expected to pronounce on whether the validation boards in fact infringe the guideline law.

For the past 18 months, the parliamentary working party has been examining the extent to which governments have effectively carried out the recommendations of this law. It has suggested a tightening up of government policy and the implementation of features previously left dormant.

One of the most important areas is in the field of international exchanges between universities in the member states of the Common Market. This, the committee noted, was one of the key features of university policy, yet it has received only the scantest attention.

Additionally, substantial changes in the mechanism of student representation are proposed. At present, the number of students' representatives on university councils depends on the turn-out at elections. The result of this electoral curiosity over the past few years has been steadily to reduce the numbers of students on these bodies. And the trend is towards even lower student participation. In 1974-75 the turn-out was no more than 25.5 per cent of the electorate. It was 27.9 per cent in 1975-76.

Equally significant, however, are the proposals to divide the country up into a series of regional university catchment areas.

A similar proposal for a *carte universitaire* was entertained by the previous Secretary of State for Higher Education, M Jean-Pierre Soisson, in 1975, but was allowed to sink out of sight. A catchment area system already exists for the Paris region as a means of avoiding overcrowding in certain faculties. The committee recommended this be extended throughout France.

One of the more daring proposals of the guideline law involved establishing regional councils for higher education. It remained a dead letter. Now, in an effort to make this acceptable to a sensitive university world the chairman of the working party suggested that the reintroduction of these bodies would allow the government to get rid of lay members from university councils.

No less controversial is the suggestion for changes in electing members to the National Council for Higher Education and Research. The council, a cross between the University Grants Committee and the research councils in Britain, is composed of university principals and the Secretary of State for Higher Education. It acts as a sounding board between government and universities. At present, university representatives are elected from among the principals by their own kind. The working group proposes to replace this by direct election by all academic staff.

Poland

'Unofficial union' is set up

by Paul Moorman

A "rebel" national students' union has been set up in Poland, it was reported from Warsaw last week.

It was said that the new organization will work closely with the Workers' Defence Committee, the group of largely anti-government intellectuals and artists which was created in the wake of the trials of workers following last June's food price riots in Radom and Ursus.

Four leading members of the Defence Committee are currently being held by the police; so far, however, there are no indications that any of the breakaway students have been harassed.

The new student body was proclaimed after reported demonstrations by 10,000 students in the ancient university city of Cracow.

The students had been mourning the death of literature student Stanislaw Pyjas, a campus activist on behalf of the Defence Committee.

Pyjas' body, badly beaten up, was found two weeks ago. The police said he had been involved in a drunken brawl but his friends claimed he had been murdered because of his political sympathies.

Whatever the truth of the matter (and the authorities have adopted notably low-key responses to dissidence in the past) and whatever the status of the fledgling independent student union, the fact of student protest in itself is unusual.

The last time students took to the streets in any numbers was in the disturbances of 1968. They remained aloof from the protests of 1970 which brought Mr Gierek to power and from last summer's riots.

There are several reasons for the traditional student lack of protest: competition for coveted university places is keen—and those who gain entry are well supported by grants and are guaranteed good jobs on graduation.

In addition, although there are no overt tests of political suitability on applicants, there is little doubt that school involvement in the activities of young Communist organizations inevitably counts for a great deal.

Many students, too, would genuinely point to the expansion of individual freedom since the beginning of the Gierek regime.

It is argued, therefore, that there must be serious underlying grievances for last week's unrest to have surfaced so openly.

West Germany

Maximum grants go up by 15pc

by Günther Kloss

Maximum awards payable to pupils and students have gone up by 15 per cent with effect from April 1 to DM480 a month (£120) for home-based students and DM580 a month (£145) to students living away from home. From October 1, there will also be an increase in the amount of allowances deductible from the net parental income before parental contributions are determined.

In conjunction with this long overdue revision of the level of grants the federal government has published a review of the impact and effectiveness of the grant legislation since its introduction in 1971. Except for the year 1976, when the adjustment of the level of awards and parental allowances was postponed to save public expenditure, the number of students in receipt of a grant has risen year by year, from 270,000 in 1972 to 334,000 in 1975 (1976: 320,000).

On the other hand the number of these students as a percentage of the total student population fell after an initial peak of 46 per cent in 1973 to 42 per cent in 1975 and 38 per cent in 1976.

There is a marked difference in these percentage figures between students at universities and students at advanced vocational colleges. While in the former type of institution only 32.8 per cent of students qualified for grants in 1976, 62.6 per cent of students at *Fachhochschulen* did.

This reflects the much higher percentage of students from working-class homes at these colleges (28 per cent) compared to universities (13 per cent). It underlines the fact that in the Federal Republic the universities, though much more open now, are still largely middle-class dominated institutions.

The university figures show that 69 per cent of the children of semi-skilled workers and 61 per cent of those of the ordinary and middle grades of civil servants get grants.

This point is emphasized when one looks at the level of school qualification reached by a student's father, which is usually a reliable guide to his level of income.

The fathers of 41 per cent of all university students have no secondary education beyond the minimum compulsory school leaving age but, taking the fathers of the recipients of grants only, this percentage rises to 58.

The converse also applies: the fathers of 34 per cent of all university students have passed the *Abitur* examination, which qualifies for access to higher education, but only 17 per cent have this qualification in the case of grant-supported students.

The Ministry of Education argues from these figures that, while the situation is still unsatisfactory, the grant legislation is working in the right direction.

However, the latest sample survey of the German Student Welfare Offices on the cost of living for students has confirmed that considerable hardship was caused by last year's decision not to raise grants and adjust upwards the allowances set against parental income.

The survey also reveals that the percentage of students living solely on their grant dropped from 39 in 1973 to 30 in 1976.

Italy

Dispute over earthquake area campus

from Patricia Clough

ROME

A decision by the Italian government to found a new university at Udine in the earthquake-stricken region of Friuli has provoked bitter protests from Trieste University, 50 miles away.

The plan for a small university at Udine, with a limited number of faculties, was included in a large number of measures announced recently to rebuild the devastated region and put it on a sounder economic and cultural basis.

Friuli, which makes up part of the semi-autonomous region of Friuli-Venezia Giulia, has long been an underprivileged area. The earthquake destroyed what modest progress had been made in recent years.

The region is the most populous area in Italy without its own university, having 930,000 inhabitants and another 700,000 emigrants hoping one day to return. It has the lowest percentage of university graduates and the highest of youngsters who leave school after compulsory education ends at 14.

Even before the earthquake, a campaign was afoot to press for a university at Udine and 125,000 Friulians signed a petition to the government.

There was considerable satisfaction, therefore, when the government outlined a plan for a university carefully tailored to the specific needs of the area. It would offer courses in territorial planning and land conservation, useful for a mountainous area whose geological balance has been upset by the earthquake.

Pleasure at the announcement, however, was soon spoiled by angry reactions from Trieste. The Rector of Trieste University said that Udine would duplicate many courses available at Trieste. And he objected to it taking away Trieste's language faculty.

He also fears that a new university would interfere with plans for Trieste University to become an important centre for advanced scientific and technological research. Trieste is the Italian candidate for the physics and applied mathematics research department of the United Nations University in Tokyo.

Friuli in the wake of the earthquake disaster.

Denmark

Occupations called off

from Mike Duckenfield

STOCKHOLM

Students returned to their studies last week after the Danish National Union of Students' executive unexpectedly accepted defeat and voted to end the nationwide, month-old occupation of university buildings, taken over in support of protesting colleagues at Roskilde University Centre (*THES*, May 20).

The executive reached its decision because of the consistent refusal by the Education Minister, Mrs Ritt Bjerregaard, to intervene in the dispute and the imminence of end-of-year exams.

Occupations and lesson boycotts, which involved more than 2,000 students, had been organized against the decision of the government and Roskilde's three external rectors to halt intake to the two-year basic course at the centre's social science faculty.

Discussions are now taking place on a compromise whereby social science intake would be postponed until next February.

Sweden

More adult learners

The number of Swedes taking part in daytime or evening study circles run by the 10 adult educational associations increased by 7 per cent to 2,543,800 — equivalent to 40.4 per cent of all over-15s — during the last school year. There were 272,000 circles, with an average of nine members studying 30 hours.

Brazil

Students take to streets again after nearly a decade

from Patrick Knight

SAO PAULO

After almost 10 years of quiescence, students in Brazil have been taking direct political action during the past weeks. The first student march since 1969 was mounted last month to protest against cuts of 35 per cent in the budget of the massive University of São Paulo. The authorities decided to stifle this march of 3,000 students, but to do so the city was brought to a virtual halt for the day.

Four students and four workers were arrested on April 28 for distributing leaflets and were held for 10 days, giving rise to fears about their safety. To protest against this, the first major public meeting, again for the past nine years, was held at the Catholic University two days later. About 3,000 students heard speakers call for an end to torture, freeing of political prisoners, and an amnesty for exiles.

At another meeting, at the São Paulo law faculty, some 7,000 students gathered to hear an open letter read out, and then, their numbers swollen to some 10,000, they set off towards the city's main square. They were met by tear gas and a strong force of police. They later dispersed without further incident.

There have been mass meetings at the universities in Rio de Janeiro and Belo Horizonte, and in the interior of Sao Paulo state. All 60,000 students at the various universities of Sao Paulo state have been on a 24-hour strike. Students have subsequently been arrested in the Northeast for painting slogans on university walls.

University affairs in Brazil have been controlled for many years by a Special Powers Act which allows the government to arbitrarily expel students or staff they consider to be undesirable. This has, until now, proved an effective brake on political activity.

The present climate partly reflects the unpopularity of the present military regime, considered bankrupt of ideas after 13 years in power. Students were applauded during the march, and onlookers joined in chanting their slogans.

But students' political sensitivities have been made suddenly more acute by the fact that hitherto attractive employment opportunities for almost all have been substantially reduced in recent months. Brazil is trying desperately to slow down its overheated economy, and massive lay-offs of workers have already occurred.

Public sector spending has been cut by 25 per cent this year. Education spending has not been spared, and the students have had the encouragement of many staff. University salaries have been increased by only 25 per cent this year as against an inflation rate of 45 per cent. Fees at the Catholic universities have gone up by 40 per cent, and this led students at the large Sao Paulo and Rio de Janeiro Catholic universities to strike recently.

Australia

Editor censured for 'extremism'

from William Purvis

SYDNEY

The national executive of the Australian Union of Students has rebuked the editor of the union's official publication in a dispute over editorial policy.

Mr Jeff Lee, editor of the *National U*, was accused of supporting a left-wing extremist group trying to take control of the AUS. At a two-day meeting in Melbourne the executive censured him several times in various motions relating to his position.

Earlier, the president of the AUS, Mr Peter O'Connor, ordered the back page of *National U* to be torn out before being distributed. The *National U* has a circulation of 50,000 and is published fortnightly. Mr O'Connor said he had ordered the removal of the back page because it contained a statement which legal advisers said was libellous.

The rest of that issue included an editorial which ended with the statement: "Smash the AUS bureaucrats."

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How much security?

Security of tenure, which is held to be one of the perks of academic life, means that an employee can be dismissed only for "good cause": misconduct, failing to do his work, or sickness. And then only after a lengthy procedure designed to ensure against dismissal which is wrongful or unfair. Since the financial squeeze, two questions have arisen: how much security of tenure do academics have in practice, and *should they have it at all?*

The answer to the first is hazy. In Britain there has not been a test case on tenure, and it is unclear whether many universities have it at all. What is clear is that more and more lecturers are not having their short-term contracts renewed, or are failing to secure a post after reaching the end of their probationary period. It is felt—though this is unproven—that universities are feeling the pinch and are forced to look more closely at criteria for allowing a lecturer to remain, and that by raising these criteria they are whittling down numbers.

Technically, it is argued, academics cannot be made redundant because they are employed both to teach and to do research, and if one load falls, they can increase the other. Both are supposed to be taken into account when a lecturer is considered at the end of his probation, or contract: there are certain criteria, laid down nationally, which he must have fulfilled. But in practice, because good teaching is so hard to define—short of student assessments, which many regard as unsatisfactory, or lecturers "spying" on their colleagues—he is judged on research publications. That means that in two years (the probation period is usually three with the third year given to find another job) the lecturer must have published work.

Despite the national criteria, practice varies from department to department. There is debate at present over whether promotion and tenure criteria should be more or less detailed: less detail would allow flexibility, but possibly more abuse, while more detail would enable decisions to be challenged, and make it more difficult for the lecturer concerned—who can be defined as a "trouble-maker"—to obtain another post.

Universities must be able to dismiss people, because there is a group—albeit a small one—of people who are parasites on the system, and quite apart from the waste of public money, students may suffer. This is all the more important at a time of financial hardship: university authorities are also managers and must be able to remove dead wood that threatens their viability.

But if they are going to be more rigorous in their application of criteria for promotion or tenure, it is essential that first, the true criteria (research, not teaching) are made plain. Second, procedures for obtaining promotion or tenure must be made more democratic. Not all universities give the right of appeal, and decisions must be taken by wider bodies. At present, decisions can rest on the judgment of two people, or a small committee.

Some answers might be rotating heads of department, which indeed happens in some places; interdepartmental review committees, who are prepared to go against their head of department's decisions; and wider use of outside referees.

As for whether academics should have tenure at all, it is worth noting that it is not a privilege unique to them; civil servants enjoy the same security. With academics, however, the case is more easily justifiable. It can be argued that their probationary procedures, more rigorous than most jobs, deserve subsequent greater security, and as a guard against later stagnation, there is always the efficiency bar. Second, a prerequisite of good teaching and research is that lecturers are sufficiently secure in their jobs to be able to express themselves freely, without fear of being removed for political or other views.

Numbers of doctors

Medicine is, generally speaking, one of the healthier areas of higher education. The Government's continuing commitment to expand the nation's output of doctors has sheltered medical schools from full exposure to the financial blizzard, and academic standards have undoubtedly been raised by the crowds of bright young men and women clamouring for admission.

As always, though, there are problems. Some of these have been examined in *The THES* over the past three weeks: future intake levels, staff recruitment, the curriculum, and London medical schools. Then there is a whole range of difficulties caused by the peculiar position of medical education, enmeshed in an exceedingly intricate web spun between *the Department of Health and Social Security* and the three tiers of the health service on one side, and the *Department of Education and Science* and the universities on the other.

The latter complain frequently that the service needs of the NHS are allowed to dominate the educational interests of the trainee doctor. On the less important financial level there are endless wrangles about who should pay the running costs of integrated medical school/teaching hospital facilities.

However, the most important issue, and the one that is beginning to focus public debate on to medical schools, is that of student numbers.

The ambitious expansion plans laid in the 1960s are still being implemented, in a diluted form: annual intake has risen from about 2,000 in 1960 to 3,735 this year and will reach 4,100 in the early 1980s, according to the UGC and DHSS. Originally the two main reasons for expansion were the shortage of doctors and the belief that Britain would be able to devote more and more money to health at least for the rest of the century.

Over the past couple of years, doubts about both points have been growing, and the Government's justification for expansion has relied increasingly on the need to reduce Britain's undisputed overdependence on immigrant doctors.

What official spokesmen fail to emphasize is that restocking the health service with British graduates is a time-limited process. The expanded output of medical graduates could probably be absorbed for a number of years by replacing junior doctors from overseas by home produce, but when the stocking up is complete the health service will need a much lower number of new graduates.

The progress through the system of this "bulge" of British graduates needs to be planned well in advance, and an independent medical manpower review body of the sort that has recently been suggested by the British Medical Association and others in evidence to the Royal Commission on the Health Service seems a sensible approach.

The medical profession is fond of quoting the recent experience of teachers as an awful warning of what could happen to doctors if political indecision or cowardice delay planning so long that a slow and orderly reduction in medical school output becomes impossible and the brakes have to be applied suddenly and harshly as the first effects of medical unemployment are felt.

In this sort of cut-back it is of course the training institutions, whether teacher colleges or medical schools, that bear the brunt of the damage. The service establishments (schools or hospitals) are not harmed except indirectly by staff demoralization.

Savage cuts will not necessarily *have* to be made if medical education does not stop expanding immediately, but the danger is sufficiently great to justify an urgent review of the present policy. It would be prudent too for the DHSS and UGC to prepare, in consultation with universities, longer term contingency plans for a reduction in student numbers.

LETTERS TO THE EDITOR

Promotion criteria

Sir,—In his discussion of promotion criteria in universities, Peter Wilby (*THES*, May 20) noted that they are "vague", but did not go on to spell out just how crucial this is to those in positions of power who may wish to reward timid allegiance and punish outspoken critics. Yet most people who have worked in universities will immediately be able to think of cases where promotion and non-promotion were comprehensible only in the light of such internal political considerations.

The availability of several criteria gives the promotion procedures almost infinite flexibility in the hands of an autocratically minded professor or head of department. Thus, excellence on one or two dimensions can almost always be effectively neutralized by special pleading about inadequacies on a third or fourth, a tactic which can also be used in the opposite direction to exaggerate the qualities of a favoured candidate. This room for manoeuvre between dimensions, furthermore, can be exploited repeatedly to block a single candidate, as can be illustrated by the following example from a department in which I fortunately no longer have to work.

In the first year of the saga, a relative newcomer to the department was told by the professor that he had "probably the strongest claim for promotion" of any of the possible contenders at that time. But alas, he had not been there long enough, and hence it would be "undiplomatic" to put his name forward until the following year.

In the meantime, a number of controversial debates within the department found him on the opposing side to the professor, and he was informed at the next round that, while he scored highly on research, publications and teaching, he was weak on "creative administration" and would therefore have to wait another year. While uncertain about precisely what was meant by this, he undertook various duties which might possibly be so defined. But the controversies continued, and he was still more often than not on the wrong side.

By the end of the third year, the professor acknowledged the vast improvement in his "creative administration", but informed him that his erstwhile good teaching record had been redefined as "indifferent". At that point, he decided to put his claim to the public test, and within two months had got his promotion at the cost of having to move to another university. He was the fifth of seven full-time members of the department who left within four years of the professor's appointment (a turnover of about 50 per cent), and in the recent market situation, the fact that so many were able to leave so easily suggests that he was far from being the only strong candidate who was passed over.

During the same period, two candidates who had avoided opposing the professor on any issue were promoted, but the latest news is that a third loyalist failed to get through the formal procedures on academic grounds. The professor's response to this has been to take the unusual step of advertising a senior lectureship with narrowly specified areas of interest which both coincide with his own, and effectively exclude from consideration any of the otherwise well-qualified internal candidates who are still there. The name of the successful candidate is apparently already known to members of the department, even though the advertisement has only just appeared and the closing date for applications is still some distance away.

This may, of course, be a quite exceptional department and, as Peter Wilby also pointed out, procedures vary a good deal from place to place. Some universities do have what look to be adequate safeguards against such manipulative uses of the official criteria for promotion, but these all too often require other professors to side with a junior member of staff against a professorial colleague for justice to be done.

A possible solution might be to make promotion and appeal procedures more independent and more open. But a danger in this would be that appellants, however legitimate their case might be, could so easily get publicly defined as "troublemakers", which would in turn make it all the more difficult for them to find another job in the event of such an appeal failing. Indeed, considerations of this sort are at the heart of my wish to remain anonymous.

NAME AND ADDRESS SUPPLIED

PNL Sociology

Sir,—With regard to your front page item (*THES*, May 20) on the CNAA Sociology degree at the Polytechnic of North London, I would be grateful to have the opportunity to put two aspects of my own position in context.

Your reporter, Sue Reid, informed me that she had received copies of four documents: an open letter to me circulated by third year students; my open reply to that letter; the letter written by Mr Miller to Professor Cotgrove, chairman of the CNAA visiting party; and the statement I circulated to colleagues indicating the nature of my replies to the issues raised by Mr Miller, should the CNAA refer to them.

First, concerning the students' letter: they had indicated that "Marxist theories made a significant contribution to the sociology course" and that "members of staff had implied that a Marxist orientation in assessment and examination papers will be penalised". I replied that, speaking for myself, this allegation concerning marking was "ludicrous" as I have consistently stated that "the criteria I apply in marking are the normal academic criteria used by those who adhere to the academic tradition—e g, logical consistency of argument; coherence of analysis; demonstrated acquaintance with relevant work in the area; balanced critical use of available evidence, etc. Whether the conclusion is Marxist or otherwise is, in this context, irrelevant and is in no way 'penalised' by me.

Second, with regard to possible bles in the teaching of the degree, I indicated in my statement to staff in the department that should this question be raised by the CNAA, "I would be being less than honest or consistent if I were to pretend that I have no anxieties on this issue".

Yours sincerely,
CAROLINE COX,
Polytechnic of North London.

English proficiency

Sir,—Your article (*THES*, May 6) on English qualifications for overseas prospective students gave a table summarizing the examinations acceptable to British universities as proof of proficiency in English.

Two British universities, namely the Queen's University of Belfast and the New University of Ulster, were not asked to supply material and did not therefore appear in the table. In order that a complete picture might be given, we would be grateful if you would kindly publish the following addenda.

The Queen's University of Belfast; Examinations Acceptable: JMB, CPE; Comments: O level GCE English, GCE Use of English, Cambridge Overseas School Certificate with credit.

The New University of Ulster; Comments: Acceptance by the university.

R. G. TOPPING,
Queen's University of Belfast.
A. E. F. GICK,
New University of Ulster.

Sir,—The table in the article "What Queen's English do universities accept?" (*THES*, May 6) gives the impression that this university does not accept a JMB test in English. The University of East Anglia does accept the JMB test in English (Overseas) as equivalent to O level English for matriculation purposes.

FRANK ALBRIGHTON,
University of East Anglia.

Letters for publication should arrive by Tuesday morning at the latest. They should be as short as possible, and the editor reserves the right to cut or amend them if necessary.

Scandinavian studies

Sir,—The report on Scandinavian Studies in Great Britain by the Inter-Universities Committee and Dr Popperwell's defence of it (*THES*, May 13) calls for a response on two levels.

On the lower level, it is highly questionable whether recommendations on national policy should ever be drafted other than by an objective and officially appointed outside body. If an "interested" group takes such a task upon itself, there is always a risk that individual concerns and subjective views may cloud judgment. Further, if such a group is not truly representative of all existing activities, direct personal consultation is vital. The Aberdeen Conference realized this in proposing a co-option system to supplement the Committee, and in calling for consultation with affected parties.

Upon my inquiry about the and purpose of the report in the autumn of last year, the secretary of the Inter-Universities Committee wrote to me (October 14, 1976) this co-option would take place. I did not, however, occur and "consultation" was restricted in the event to the hasty circulation of a typescript at Christmas. Regrettably many of the comments made at the time did not find their way into the final document which was published a mere five weeks before the Norwich Conference, and sent to the UGC, CVCP and Vice-Chancellors of universities with Scandinavian studies—to the surprise of many delegates.

Whether or not this procedure was indeed in accordance with the wish of the Aberdeen Conference, as Dr Popperwell asserts in his recent letter, will, however, be known: that conference had no elected officers and no minutes were circulated in advance of, or even presented for adoption at, the Norwich Conference. Certainly, memories can be defective. The secretary of the Inter-Universities Committee had informed me in his letter of October 14 that "our next conference will be in March 1977 at Norwich, when the Committee will produce its report, and if it is approved we shall send it to the UGC and the CVCP".

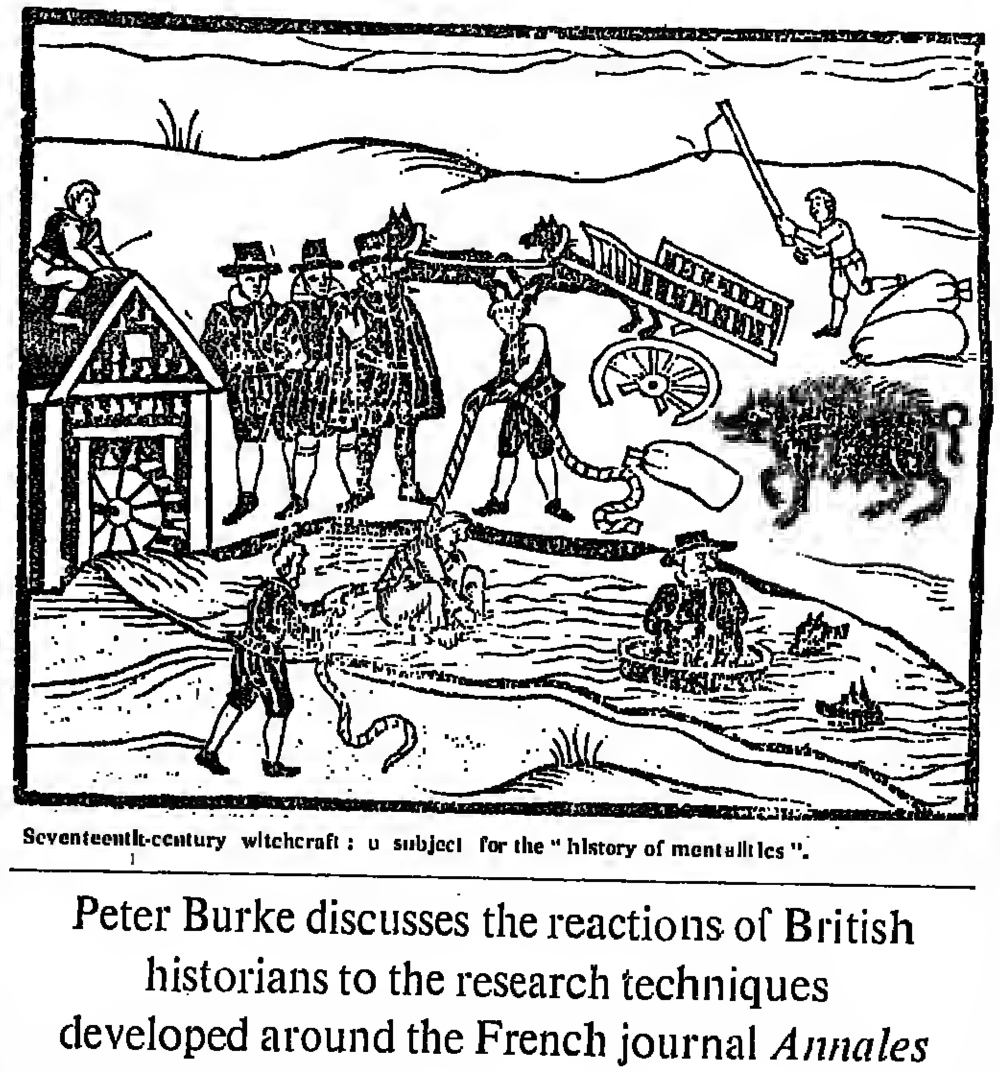
The failure to issue agreed minutes, when queried at Norwich, was ascribed to the informality of the Aberdeen Conference. It is curious that such an informal gathering could nevertheless assume the onerous task of advising on national policy. And if we are to throw doubt on the validity of the vote rejecting certain of the recommendations, as Dr Popperwell does, we should remember that a number of official foreign representatives felt they had to abstain, while it seems extraordinary that only four votes could be cast in favour of the recommendations, although the drafting committee present at the conference alone numbered six.

On another level, however, this report fails to take into account the relative decline in the popularity of modern languages as a whole in recent years at British universities. As your perceptive leader "Scandinavian Saga" points out, the plight of individual minority languages cannot be treated in isolation. Nor can the plight of the single-subject honours course, be it French, Swedish, German or whatever. Students today seem to be aware of the need to find employment after university and are therefore choosing in ever greater numbers combined courses, of two or more languages, or of languages and other subjects like economics, politics and sociology.

This in no way affects the validity of medieval and philological studies: it merely reflects an increasing desire of young people to understand the contemporary world in an academic manner. Some universities have responded to this need and have been rewarded with ample student numbers. We heartily endorse the report's recommendation that departments of proven "resourcefulness and vitality" should be encouraged, but it is not for us, the interested parties, to decide which departments these may be.

Yours sincerely,
NIGEL REEVES,
Head of German and Scandinavian,
Department of Linguistic and International Studies,
University of Surrey.

Writing history from the bottom upwards



Seventeenth-century witchcraft: a subject for the "history of mentalities".

Peter Burke discusses the reactions of British historians to the research techniques developed around the French journal *Annales*

It is nearly 50 years since Lucien Febvre and Marc Bloch launched their revolutionary journal, known familiarly as *Annales*, and it is over 30 years since the revolutionaries overthrew the old regime and took over the government—with Febvre as president—of the *Sixième Section* of the *Ecole des Hautes Etudes*. Now that a generation has passed, it should be possible to see these events in historical perspective, to assess the achievements of the new regime, and to discuss the impact which *Annales* has made or should make on the writing of history here in Britain.

The British were relatively slow to notice that an historical revolution had taken place across the Channel. In the 1930s, Bloch was known simply as an able economic historian of the Middle Ages, while Febvre was scarcely known at all. When Braudel's *Mediterranean World in the Age of Philip II* was published in 1949, it was not noticed in the major British historical journals. Few British historians contributed to *Annales* in the 1950s. As for the wider public, there was little they could hope to discover about the new approach to history, for virtually nothing written by Bloch (who was killed in 1944), or Febvre (who died in 1956), was published in English in their lifetimes.

When in the 1950s British historians began to react to this French revolution, it was with a mixture of interest, puzzlement, suspicion, and even a little hostility—a reaction not unlike that of British philosophers a few years earlier, when confronted with the work of Sartre and Merleau-Ponty. The British found, neither for the first time nor the last, that they simply did not speak the same language as the French. Terms like *conjoncture* ("trend") and *mentalités collectives* proved, as they still prove, difficult to translate or to assimilate. One reviewer after another has referred to the "mannered and intensely irritating *Annales* style", or to "the esoteric jargon which sometimes suggests that the authors of the *Sixième Section* are writing only to be understood by each other".

Underlying the rejection of their language were more serious criticisms of the *Annales* approach, criticisms which were not always made explicit or spelled out in detail. There was the fear that the new history was peopled by impersonal forces, rather than by individuals made of flesh and blood. There was *the suspicion* of grand generalizations. There was the feeling that what Braudel and his colleagues were doing was really philosophy or perhaps sociology. It might be magnificent, but it was not history. Yet it was difficult to voice this feeling without entering the field of methodology, and one of the features of the *Annales* approach which most repelled British reviewers was precisely the preoccupation with methodology. In short, there was a cultural barrier between Britain and France which has proved extremely difficult to break through.

This first, rather cool, response to the work of the *Annales* group has gradually given way to something much warmer. The foreign body is now lodged firmly in the hide of British historical scholarship. In the 1970s Braudel's *Mediterranean* appeared in English at last, and so did Goubert's *Louis XIV and Twenty Million Frenchmen*, Le Roy Ladurie's *The Peasants of Languedoc*, and some of Febvre's essays. Like a retrospective exhibition, these and other translations have given British historians a chance to comment on the *Annales* approach as a whole.

Their welcome has been more enthusiastic and their criticisms have been more constructive than in the past. Perhaps it is a question of generations, perhaps the British are showing an increasing ability to assimilate foreign ideas; for the discovery of *Annales* has been taking place at much the same time as the discovery of Lévi-Strauss, Foucault, Adorno and Gramsci. For the first time it is possible to imagine British historians doing what (for example) Italian and Polish historians have long done, writing books inspired by the *Annales* approach.

One might recapitulate the main features of that approach as follows. There is the belief in "total history", in the description and analysis of the connexions between economic, social, political and cultural history; at once a rebellion against the traditional dominance of political history and a refusal to accept (at least *a priori*) the Marxist assumption of the dominance of the economic. Then there is the interdisciplinary approach, the belief that historians can learn something from geographers, sociologists, psychologists, economists, linguists.

There is the displacement of interest from the history of events (*histoire événementielle*, a pejorative term often used by members of the *Annales* group) to the history of structures, structures which change so slowly that their movement is imperceptible to contemporaries, whether these structures are mental or physical. Emphasis on the one gave us Febvre's *Problème de l'Incroyance au Seizième Siècle*, a brilliant reconstruction of the fundamental attitudes of the sixteenth-century Frenchman; emphasis on the other gave us Braudel's classic exploration of the historical ecology of the Mediterranean world.

Is this the kind of history we should all (so far as we can) be trying to write? Or were the earlier British reviewers justified in their suspicion of *Annales*? Curiously enough, I think that the answer to both these questions is "yes".

The first, and more important point, is that it would be a good idea if more British historians tried to emulate what is best in the work of the *Annales* group, instead of keeping their distance. The second point is that the British have made some criticisms of the new approach which have undeniable force. To illustrate both of these points it may be useful to narrow the focus a little.

The cultural barriers between British and French historians are probably most difficult to penetrate in the area which the French call *histoire des mentalités*, an area which overlaps but does not coincide with what the British, like the Americans, call "intellectual history", or "history of ideas". I would venture to suggest that it is in this area that the British still have most to learn from the French; but also that it is in this area that British criticisms of the French approach, if only these criticisms could be made explicit and formulated clearly, could be of the greatest value. The French historians see the opportunities and the British historians see the dangers which their opposite numbers miss.

This "history of mentalities" was developed more or less simultaneously, in the 1920s and 1930s, by Marc Bloch and Lucien Febvre and by Georges Lefebvre, the great historian of the French Revolution who stood outside the *Annales* group but shared ideas and ideals with them. It is a kind of history of ideas, but of everyone's ideas, not just the ideas of great thinkers or of intellectuals. Thus it stands midway between social and intellectual history. It involves the history of changing assumptions as much as that of consciously held ideas, the history of feelings, or at least emotionally coloured attitudes, as much as the history of thought in a strict sense. Thus it is not sharply separated from what the Americans call the study of "psycho-historical process".

The first example of the new history of mentalities remains one of the best. It is Marc Bloch's *Les Rois Thaumaturges*, published in 1923 and translated into English (with a time-lag of 50 years) as *The Royal Touch*. It is a history of the rise and decline of the belief, current in England and France from the Middle Ages to the eighteenth century, that the king had the power to cure the disease of scrofula miraculously, simply by touching the sufferer. What interested Bloch was the problem of explaining this "collective error", in particular of explaining why people continued to believe in the king's power to cure although the touching was often seen not to work—for he points out that some sufferers went back to be touched a second or even a third time.

Bloch made the point that people believed in the miracle because they expected it. If the sufferer got well, the cure would be ascribed to the royal touch. However, it was not thought that this touch cured automatically; hence it was worth coming back for another try. In other words, cures confirmed the belief in the king's miraculous power, but the absence of cures did not falsify it.

What remained implicit in Bloch was made more explicit in the work of Lucien Febvre, and notably in his already-mentioned *Problème de l'Incroyance au Seizième Siècle* (1942), a book which has never been translated into English. Febvre asked himself the question: Was it intellectually or psychologically possible to be an atheist in the sixteenth century? To answer the question he drew up an inventory of what he called the "mental equipment" (*l'outillage mental*) available in the period, emphasizing what he called its "primitive" nature and arguing that the age was not yet ready for unbelief.

Since the 1950s, increasing numbers of French historians have been writing books which discuss the "history of mentalities" in the tradition of Bloch and Febvre. One thinks of medievalists like Georges Duby and Jacques Le Goff. For a later period there is, for example, the work of Robert Mandrou on "historical psychology", on popular culture, and on witchcraft in seventeenth-century France; there is Michel Vovelle's study of attitudes to death and the beyond in eighteenth-century Provence; and there is one book which has certainly attracted a good deal of interest on this side of the Channel, *Centuries of Childhood* by Philippe Ariès, on changing attitudes to children, or rather, as Ariès himself puts it, with the "sense of childhood" (*le sentiment de l'enfance*), as much a feeling as an idea.

There is nothing quite like this movement in Britain. It might be argued that some British historians do write the history of mentalities, although (with the characteristic exception of Richard Cobb), they prefer not to use the term. Lawrence Stone's *Crisis of the English Aristocracy* (1965) contains a substantial section on "minds and manners", which attempts the reconstruction of the fundamental attitudes and values of one social group. Keith Thomas's *Religion and the Decline of Magic* (1971) stresses the interconnexions between "different aspects of the mental life of sixteenth- and seventeenth-century England" in a way which would surely have pleased Bloch and Febvre.

All the same, the differences between the current French style of historical writing and the British style are obvious enough. In Britain there is still a gap between social history and intellectual history. British historical demographers, for example, are apparently less interested than their French colleagues in the history of attitudes to birth, or marriage, or death. There is no one here quite like Jean-Louis Flandrin, who teaches at Vincennes and specializes in the history of attitudes to love and sex, marriage and the family. More generally, it is still difficult to imagine a British research student confessing, perhaps over tea in the Institute of Historical Research, that he is working on the history of mentalities, let alone the history of love or death in Norfolk (say) or Cumberland.

In other words, the work of Bloch and Febvre, Duby and Mandrou, Ariès and Vovelle and others presents a challenge to British historians. Ought we not to be trying to emulate them? Ought we not to be writing—and teaching—the history of mentalities? Or is there something wrong with this exciting French approach? Can the cautious British see, perhaps, that the emperor has no clothes—that there is no such thing as a mentality?

At this point the cultural barriers threaten once again to prevent Franco-British communication. To most British historians, reared as they are in a tradition of methodological individualism (even if the term is foreign to them), it is obvious that there are no such things as *mentalités collectives*, there are only individuals who think. To the French it is equally obvious that the term *mentalité* is not being used to describe a *thing* at all, but rather the *relation* between different beliefs or attitudes; and these attitudes (or "representations", as Durkheim called them) are "collective" in the sense of being shared by individuals, not in the sense of standing outside them. They are not impersonal forces.

That said, it remains true that the history of mentalities is more dangerous and more difficult than is often believed, and that it raises problems of method which deserve more discussion than they are currently receiving in Britain or France.

Suppose we say, paraphrasing Febvre, that there is a difference of mentality between individuals or groups when their beliefs differ not simply in content but in deep structure. What are these structural differences like? How many different mentalities are there? At the time when Bloch and Febvre were writing, the answers to these questions seemed simple enough. They took over the term *mentalité* from the writings of Lucien Lévy-Bruhl, a philosopher with an interest in ethnography who published *La Mentalité Primitive* in 1922.

To Lévy-Bruhl it was clear that there were two basic mentalities, the civilized and the primitive. Civilized man thinks in a logical way, primitive man was "prelogical", in the sense of being unconcerned to avoid contradictions. Civilized man gives causal explanations of phenomena, but primitive man gave explanations which were "mystical" in the sense of asserting connexions which are imperceptible to the senses.

Bloch and Febvre refer to Lévy-Bruhl in their footnotes, and point out examples of "primitive mentality" in medieval and in Renaissance France. Unfortunately, Lévy-Bruhl's views have been repudiated by his successors, notably, of course, by Lévi-Strauss. Neither French nor British anthropologists now accept the theory of the two mentalities. Lévi-Strauss suggests that there is only one basic mental structure—that we all think in binary terms. A case might also be made for saying that there are more than two mentalities, that the Japanese, for example, think in a way equally distinct from the medieval and the modern French. Whatever we do, we cannot follow in the footsteps of Bloch and Febvre as if nothing had happened.

One possibility open to historians is to be less ambitious, to shelve the question of structures and simply try to describe the attitudes of ordinary people in the past. This is more or less what Ariès and Mandrou and Vovelle do; but here too there are dangers. One obvious danger is that of failing to differentiate between the attitudes of different social groups at a given period. Febvre talked too easily about "the sixteenth-century Frenchman", without distinguishing clergy and laity, nobles and peasants; Ariès too writes of "the" sense of childhood in seventeenth-century France, without asking *whose* sense, that of the rich or the poor, men or women.

A second danger arises from the attempt to apply "hard" quantitative methods to "*soft*" data like beliefs. Since the historian of mentalities is dealing with the attitudes of large numbers of people, it is his duty to adopt quantitative methods if he can. Michel Vovelle has shown the way in his *Piété Baroque et Déchristianisation*, a study of changing religious attitudes in Provence based on some 30,000 wills. Vovelle shows remarkable virtuosity in handling his statistics. He is well aware of regional and social variation, but he is also able to establish major trends, like the decline of showy funerals or of invocations to the Virgin Mary. Yet he never makes it quite clear what these changes mean; whether, for example, they reveal a decline of Christianity, or simply a shift from one style of Christianity to another (and if so, what this new-style belief was like). Where quantitative methods cease to be applicable, he stops.

It would be churlish to end on a note of criticism. Some of the younger historians of the *Annales* group are experimenting with new approaches borrowing, for example, from symbolic anthropology. Their work on the history of mentalities deserves to be better known in Britain.

The author is reader in history at Sussex University.

Getting back to nature

Behind the Mirror: A Search for a Natural History of Human Knowledge
by Konrad Lorenz
Methuen, £4.90 and £2.75
ISBN 0 416 94270 9 and 94280 6

The 50 years since his first published paper have brought Konrad Lorenz a Nobel prize and a storm of controversy. Both spring from his animal ethology, so striking in its tender observation of the living world and so infuriating as a clue to the study of man. In *Behind the Mirror* he sets himself to consider human understanding "in the same way as any other phylogenetically evolved function which serves the purposes of survival". The aim is to explain and to prescribe and, as in *On Aggression*, all turns on continuities between natural animal life and civilization:

> The essence of what we call the human mind resides in a supra-individual synthesis of knowledge, volition and skill produced by the human faculty for accumulating transmitted knowledge. The resulting entity, however, is itself a living organism, synthesized from other simpler living organisms, and however supreme it may appear it shares with them an ineluctable fate—namely, that, like all living organisms, the human mind, and thus human civilization, can suffer from malfunctions. Both can become sick. So it is not only the scientist but also the doctor who, for other and more urgent reasons, calls for a scientific picture of man.

But the doctor's task proved too important for a single volume, he says, and is postponed. This book offers the scientific picture of man.

Its arguments start from just enough of an account of animals to set us off. These glimpses attest Lorenz's love of his subject, the beauty and complexity he finds in it. They bring the text to life but the argument does not depend on them. It depends on whether an evolutionary version of Kantian epistemology will let him reject reductionism and behaviourism without placing man and society apart from nature.

Against reductionism, construed as the claim that complex systems are mere compounds, he argues for emergent qualities. "No system on a higher level of integration can be deduced from a lower system because, whenever two independent systems are combined, wholly new characteristics can develop." The ganglion cells which together perform the highest intellectual function of the brain are individually far inferior to the amoeba. In every synthesis there is always a *fulguratio*, a "creative flash", signifying a change not of degree but of essence.

Against behaviourism he holds that what emerges from a synthesis depends on what is innate. Thus "imprinting" (the irreversible fixation of a response) cannot be explained solely by the conditioning process. What Hume did not know and modern behaviourists do not want to know is that all adaptation is a cognitive process presupposing "a vast amount of phylogenetically acquired information stored in the genome". Such innate givens are Kantian *a prioris*—"they were there before all learning and must be there for learning to be possible".

All adaptation being a cognitive process, conceptual thought is not peculiar to man. It requires syntactic language, cumulative tradition, voluntary movement, learning through imitation and (for its advanced forms) powers of abstraction, supra-individual knowledge, foresight of consequences and moral responsibility. Yet all exploratory animals, which are "open to the world" have it. A raven poking its bill into oddments is trying not to eat what it finds but to determine what is edible. Human thought is only more complex. "The creation of man *is* the 'creative flash' of accumulated tradition and the cerebrum is its organ".

A final theme, potentially important but only intermittently aired, is that the unit of analysis is not individual men but cultures extended in space and time. Although too diverse in the subject to a single principle, they have invariant elements . "phylogenetically programmed and genetically specified". Evolution does not so much instil what is supra-individual in civilization as activate it.

This summary should suggest virtues and snags in Lorenz's case. The virtues are those of a humane and wise ethologist, who is not at all tempted to present men as naked apes with territorial imperatives and other such crass urges. Nor, being a believer in instincts, does he suppose that mere empirical study will reveal the workings of nature. By painting an intricate portrait of animals and advancing under Kantian auspices, he escapes some common complaints against animal ethologists on the rampage. As befits the leading proponent of the troublesome analogy, his argument is reflective, complex and lucid (praise also to Ronald Taylor, the translator). I feel churlish in failing to respond to it.

But the snags obtrude. It may seem promising to enrich the animal end of the analogy but the result is viciously circular. What is added is not just an ethologist's loving care. There are also three crucial kinds of concept, which cannot strengthen the analogy since they presuppose it. The first comes from cybernetics and communication theory—notions like "short-term information gain" or "negative feedback"—and is used to ascribe a purposive formal structure to animals. Since man is plainly not alone in being able to adapt and advance, the move looks innocent. But it lets Lorenz find continuities simply by importing them. A paramecium with an obstacle and a man with a newspaper both make short-term information gains, but it is ill said, unless both informations involve the same root idea of meaning; and this is never established.

The second kind of concept is taken over from a standard context of intelligent human activity. For instance, while pointing out that learning affects an animal's whole system, Lorenz remarks that Pavlov's dogs learnt not just to salivate but to exhibit motor patterns of begging. Well, yes, but is this begging as human beggars beg, say for money? Similarly babies smile and adults smile; old crows resent a change in routine and so do senile old men; grazing ruminants and people looking for mushrooms display klino-kinesis. Such juxtapositions are frequent and suggest that rules, conventions, intensionality and other aspects of meaning something are not peculiar to man. But should they? Consider this typical sentence, "Knowledge cannot be stored in any other form than in structure, whether this be the chain molecules of the ganglion cells of the brain or the letters in a textbook." I found nothing in the book to show that cells and letters form a relevantly similar structure, nor, in general, that the *fulguratio* or "creative flush", instanced in a sense by all emergent qualities, is comparable in molluscs and men.

Third, there are typically supra-individual concepts like "tradition", "ritualization" and especially "culture". No doubt they can be applied to animal behaviour but this is in itself no more evidence of continuity than is the fact that cows and philosophers both ruminate. Proof of continuity would need a precise analysis of the notion of human culture and a case for applying its central features to animals literally.

Lorenz gives neither. Indeed, by the standards he sets for animal observation, his few instances of human interaction are casual in the extreme. He seems to regard social life in man and animals as basically a matter of an environment reacting with what is stored in the genome. If so, sociologists will justly protest at having their subject whisked from under them in this offhand way.

When these three sorts of concept are imported into ethology, the argument for continuity becomes easy but empty. Man cannot fail to resemble the animals wherever they have been conceived by analogy with man.

Nor does the evolutionary epistemology provide much [illegible] assertion. The idea is that man is "a physical entity, an active perceiving subject" in contact with the realities of an equally physical world, and that the contact is mediated by instincts and a priori categories of the understanding, which evolved for the sake of survival. I was interested but unconvinced. For [illegible] Chomsky has not proved that men of all races and cultures share certain thought patterns which are innate" and which "constitute the logic of thought itself". It is debatable how far he tried [illegible] per may or may not have [illegible] a deep confusion between [illegible] psychology in Hume but he certainly has not resolved the problems of traditional empiricism. He may have failed to guarantee that the categories are immutable, that is no direct call for an evolutionary theory of the cerebrum [illegible] do not mean necessarily that learning relies on false authorities and philosophical errors. I mean [illegible] far more argument is needed if the blend of the transcendental, instinctual, physicalist and evolutionary is to carry any weight.

Even if all the assertions in the book were proven, there would be a huge flaw in the [illegible] Lorenz, as a scientist, [illegible] it is that learning strengthens behaviour which promotes the survival of the species. The [illegible] is important to him ethically since it will lead him to diagnose the ills of our civilization. His second volume will, I think, [illegible] under his belief that modern men are failing to learn in ways which activate our useful instincts and so aid our survival. It is a [illegible] which presumes broadly that what is good for the paramecium is good for the USA and I find no reason in this volume to accept it. At any rate there is an opposite and equally plausible view that civilization depends on suppressing much of what we share with other animals, by preventing natural selection and creating a social world, artificial and discontinuous with the natural. By this test much of what Lorenz thinks healthy is [illegible] and many casualties of history [illegible] serve better. I am saying not that one view is truer than the other but that Lorenz offers no case at all for preferring his. The link between ethology and ethics is [illegible] what survives is what is fit to survive. For over a century able philosophers and social theorists have sought to justify the link, while others have savaged their arguments. I report with confidence that it is not to be found by looking behind the mirror.

Martin Hollis

Professor Konrad Lorenz

A broad perspective on the brain

The Vertebrate Brain
by Ronald Pearson and Lindsay Pearson
Academic Press, £23.00
ISBN 0 12 548060 1

To provide a panoramic survey of the studies of biochemists, endocrinologists, ethologists, histologists, neuroanatomists, neurophysiologists, pharmacologists and zoologists on the vertebrate brain is an awesome task indeed, but that is the aim of the present work. Inevitably, it is not a book to be read from cover to cover, but rather to be dipped into, for it is the unexpected that is important. I was delighted to learn that turtles produce sounds during mating, and to discover the Wulst, a cortical structure in birds concerned with vision and hearing. Electrical stimulation of this region causes various effects, including head and beak movements, swallowing, feather ruffling in the beak area and pupillary changes.

No attempt is made to put a case, or to express a particular point of view, so that the book is not likely to be attacked, or praised, by a politico-biologist. However, the lack of a conceptual framework is regrettable, for the selection of material appears to be somewhat arbitrary and it is difficult to discern the basis for choice. Thus, in dealing with the mid-brain of reptiles experimental information from just four papers is quoted. Does this paucity of information really reflect a lack of physiological interest?

And then the biochemical material is curious in character, with the distribution of copper, magnesium and zinc within the brain of the pig being featured in a table for no very obvious reason, particularly as it is emphasized that the concentrations of these metals vary between species. This is hardly the place to look for a summary of the distribution of cytochrome C in the human brain, but there is one. The reactions of neurones in the medulla to blood pressure variations need not be detailed, and a table illustrating the distribution of various lipids in the cerebellar cortex of the monkey is of little value. There is also the bald statement that all mammals seem to have sites of serotonin synthesis in the raphe, and that in the ground squirrel the concentration is greater in females, and falls on entering hibernation. But there is no hint of the possible function of serotonin in relation to sleep, or as an important component of the monoaminergic systems of the brain, and a search for other references was frustrated by lack of mention of serotonin in the index. The section on monoamines in the avian mid-brain leaves the reader mystified about the possible physiological function of these compounds and it is perhaps as well that this material is also not indexed. Similarly, the section on experimental studies of the reticular formation in the medulla conveys little of present knowledge, and I looked in vain for some discussion of the relationship of this area to sleep and arousal, and to the varying occurrence of sleep in lower forms.

The book has evidently been in preparation for at least 10 years, for in many sections references up to 1967 are numerous, and later citations sparse. This is particularly notable in the section on the hypothalamic releasing factors affecting the secretion of pituitary hormones, where the latest reference is for 1970, and the major discoveries concerning their isolation, synthesis and distribution that followed soon after are ignored. There is no dearth of material for discussion.

The Vertebrate Brain will be of greatest value to those with some understanding of vertebrate neuroanatomy and brain function seeking a broader perspective, and is not recommended for the novice. Even so, I wonder what the neurophysiologist or neuroanatomist will make of the discussion of the relationship of DNA to learning in fish, where it is noted that when the brains of goldfish trained to swim to normally repellent green light were fed to naive fish the consumers swam to green light about 12 hours after their meal. Subsequently, not very up-to-date work on mammals is quoted and gives rise to the remark that biochemists, previously concerned to study the overt molecular effects of cell chemistry, have today to take quantum mechanical characteristics into consideration. I cannot imagine what philosophical point is being made, but the neurobiologist need not worry, for on the basis of this survey so little is known about the brains of the lower vertebrates that they can ignore quantum mechanics and yet be fascinated for generations to come.

B. T. Donova

Measuring up for size

World-Wide Variation in Human Growth
by Phyllis B. Eveleth and J. M. Tanner
Cambridge University Press, £20.00
ISBN 0 521 20806 8

The measuring of the growing child has become something of a ritual in societies like ours. In school and health clinics the recording of a child's height and weight is an invariable prelude to seeing the doctor or nurse.

Despite the apparent simplicity, many body measurements require great skill in their taking. One of the world's centres of this skill is the department of growth and development at the Institute of Child Health, London, and during the course of the International Biological Programme—a 10-year programme of international cooperation in research into all aspects of ecology—this department, under the directorship of Professor J. M. Tanner, acted as the reference centre for all human growth studies. Here advice was given to researchers on what measurements could most usefully be made, and how they should be taken. The centre later acted as a repository for data and undertook the comparative analysis which this book records. In the IBP 340 growth projects were made in 42 countries and the analysis is not limited to these but also embraces some major non-IBP studies.

The book, therefore, provides the most comprehensive examination of patterns of human growth that has ever been made. Coverage really is world-wide and information on Europeans in and out of Europe, Africans and Asiatics both in their own continents and in the Americas, Australian aborigines and Pacific islanders and many other groups is presented. This is of great anthropological interest, but it is also of immense medical value, since, although the widespread folk belief that "big is good" needs many qualifications, it is certainly true that the rate of growth at any stage of an individual's development is a sensitive indicator of overall health at that time; and that size, the product of cumulative growth, reflects better than anything else the quality of preceding biological experience.

Many features of growth and maturation are highly dependent on such environmental conditions as hygiene, child care, stress and particularly, nutrition. Well-executed growth studies are therefore indispensable to understanding a population's health, especially in the developing world. The fact that menarche is as late as 15.5 and 18 years in groups in New Guinea and East Africa as compared with 12.4 years among the well-off in Istanbul and 12.4 in Singapore, is almost certainly mainly due to varying environments.

However, other factors, particularly hereditary ones, can be important. Thus, while under comparable good conditions African and European children do not appear to vary systematically in size they differ in certain aspects of body shape; and Asiatics, even when growing up under the best circumstances are shorter at all ages than well-off Europeans and Africans.

All these issues are fully and soundly discussed in this book, which will for a long time to come be a standard reference book for students of human growth. It provides a base line from which growth changes in populations in the future can be judged. Unlike most reference books it is also very readable, with most of the detailed statistics kept to appendices. The publishers, as well as the authors, deserve complimenting for the production.

G. Ainsworth Harrison

Data on difference

Exploring Sex Differences
edited by Barbara Lloyd and John Archer
Academic Press, £5.00
ISBN 0 12 453550 X

There is a band of vociferous crusaders, self-appointed and self-righteous guardians of "responsibility in science", which busies itself castigating errant workers who have the temerity to be interested in studying individual differences of one kind or another. Some of these crusaders are contributors to this book, the general message of which, if there is any, is to rebuke authors caricatured as "genetic determinists".

The book consists of 10 chapters, among them an interesting one by Ullian charting the development of conceptions of masculinity and femininity in children, an opaque "anthropological perspective" by Strathern, and two unobjectionable reviews (which read more like annotated bibliographies) on sex differences in cross-cultural perspective by Rosenblatt and Cunningham, and on sex differences and psychopathology by Mayo. Such reviews make vapid and irksome reading, offering, in the words of Rosenblatt and Cunningham "few strong conclusions"—in fact no conclusions are offered, and it is in this respect that the contributors to this volume differ radically from the "biologically-based" theorists they criticize: while the latter are concerned with the mechanisms and processes underlying behaviour and its organization, these authors seek only to enumerate, to summarize, to commend, all of which further our understanding relatively little.

A chapter on intelligence, occupational status and achievement by Kipnis dwells unduly on outmoded studies; chapters on "female hormones and behaviour" (Messent), and "male hormones and behaviour" (Rogers) deal chiefly with animal studies. The tergiversation of the latter author is particularly notable: having condemned extrapolation from animals to humans, she devotes several pages to detailed descriptions of the effects of testosterone on chicks without commenting on their relevance; criticizing Broverman and his colleagues for their experimental procedures she says: "Future experimentors need to administer androgens in inert vehicles more than once in the same subject . . .", and immediately pronounces, "Indeed, I question whether the administration of testosterone by Broverman's group was an ethical procedure. . . ."

The best chapter, by far, is one by McGuinness on "sex differences in the organization of perception and cognition". McGuinness argues that sex differences in perception, and hence in neural structures probably early in life, lead to different biases in the sexes. These biases make certain stimuli more salient than others and also certain response strategies more likely than others. In this manner, girls and women come to value communicative skills and to be socially sensitive, while boys and men are more concerned with non-social elements and with restructuring and reorganizing such information. This chapter is *wildly* speculative and the speculation, at times, far transcends the data—nevertheless, it commends itself to me for its attempt to outline the developmental processes that may be involved and the mechanisms whereby these processes are influenced.

The concluding chapter by Archer is frankly pretentious: one straw man after another is put up, authors with whom he disagrees are repeatedly misconstrued (p248), words and phrases are quoted out of context in order to make a point (p257), and oppositions are created where none exist (p251).

Arguments between nativists and empiricists will continue in science, and to a certain extent these can be fruitful. What I fear, however, is the complacency of our guardians of scientific morality. Concluding her introductory chapter, Lloyd says, "I believe that the responsible scientist must give as complete and unambiguous account as possible" and yet fails to reconcile two contradictory statements: "Androgens . . . seem to be the hormones most directly involved in sexual libido in humans" (page 163); "In most mammals, oestrogens seem to be the most important hormones concerned with female sexual behaviour" (page 187). The danger of this book is that the ideologies of the contributors are not made explicit and we are led to believe that the authors are dispassionate and *responsible* scientists. Only occasionally do we get any insight into their prejudices: "Constancy of a behaviour across cultures can never ascertain that this behaviour has a genetic or hormonal basis, since the cultural influences on that piece of behaviour could be the *same* in all cultures. Only variation between cultures can lead to deductions; *for* cultural influence being the main determinant, and *against* biological/genetic factors being important determinants" (p167). A case of having your cake and eating it!

Corinne Hutt

Juvenile delinquency

The Delinquent Way of Life
by D. J. West and D. P. Farrington
Heinemann Educational, £6.00
ISBN 0 435 829351

The nature and origins of delinquent behaviour have been studied in a number of contrasting ways ranging from the analysis of official statistics to the observations and interpretations of the dedicated researcher who becomes absorbed into a delinquent gang. The assumptions lying behind the choice of approach are quite distinct, and, perhaps not surprisingly, the conclusions to which they came are also quite different in nature and emphasis.

A good example of one such approach is the longitudinal study by Donald West and his colleagues who have followed a sample of some boys from a working class area in London since they were eight years old. This book reports the third stage of the research, and its findings are based on interviews with a commendably high proportion of the original sample when they were 18 or 19. The team also had access to the criminal records, where applicable, of the boys and members of their families. The evidence has been carefully analysed, and the authors are refreshingly (and appropriately) honest about the problems encountered in fieldwork for this sort of study.

By the age in question roughly a quarter of the boys had a criminal record, mainly for dishonesty, and 16 per cent had more than one conviction. It was therefore possible to compare aspects of the background and behaviour of the delinquents and the non-delinquents and to take into account the level of delinquent activity. The picture that emerges is very much in accord with establishment views of what young delinquents are like. Judging by their own accounts they are less conforming and less socially restrained than their non-delinquent peers; this shows itself in their smoking, drinking, gambling and sexual habits, their education and work history, the way they spend their leisure time, and their relationship with their family. Of particular note are the unusually aggressive attitudes and behaviour of the delinquent group. There was also a strong family association, delinquents being more likely to have parents or siblings with a conviction.

While acknowledging that the research approach employed does not allow for the adoption of any one explanation at the expense of others the authors choose to set particular store by the concept of a delinquent *character* at the expense of emphasizing the effects of social forces. In doing so they appear to minimize the complex and interactive relationship between social characteristics and the broader social context.

An acceptance of some of the authors' interpretations would have been easier had I felt that they had an affinity for the young people whose lives they have investigated in such detail. Although they cite David Matza in support of the need for researchers to "remain true to the phenomenon under study" this seems to be contradicted by aspects of their own approach and presentation, for instance, the convention of referring to the youths as numbered cases. A more sympathetic and insightful representation of their world could lead to a reappraisal of the evidence they present.

Peter Barnes

Language and social meaning

Language in Context
by Diana S. Adlam with the assistance of Geoffrey Turner and Lesley Lecker
Routledge & Kegan Paul, £6.25
ISBN 0 7100 8481 1
Language in the Inner City: Studies in the Black English Vernacular
by William Labov
Basil Blackwell, £10.00
ISBN 0 631 17670 5

This contribution by Adlam and her colleagues forms the ninth unit in the Primary Socialisation, Language and Education series. It is undoubtedly one of the best in the whole series; it is billed as containing both theoretical and empirical investigations of Bernstein's ideas and it has just that in a refreshing mix as the contributors examine the language produced in different tasks and contexts.

One of the most refreshing aspects of the book is a foreword by Bernstein which I commend as essential reading for anyone who wants to look back at the various volumes in the series and consider them. I agree with much of what he has to say about codes in his foreword; the discussion ranges over much more ground than the two schemes of elaborated and restricted codes. Indeed in relation to the Trotin task in which children were asked about three detailed picture postcards depicting work by the artist Trotin he finds no particular significance about whether the child produces elaborated or less elaborated nominal groups.

The volume has two main parts: the first is an analysis of the language produced by two groups of seven-year-old children matched for verbal intelligence scores elicited by means of a number of different situations in a formally structured interview. The second study compares and contrasts the language of each child and of each group across the various eliciting situations.

The main body of the book consists of detailed and valuable analyses of the language and the content of the language produced by the children based in great part on Halliday's network system and a concentration on structures of meaning: on reference (in particular the notion of explicitness) and cohesion. It is difficult to overemphasize the sheer value to be gained from reading these studies. They deserve to stand in their own right as contributions to knowledge about language: but that is not how they are presented. Rather they are presented as empirical and contextual supporters of social class differences in language performance. And as such it is worth looking at what exactly they find as far as language differences are concerned.

They find for example that in talking about the Trotin pictures there is no significant difference between the children in amount of speech; and it is reported that in some contexts (or situations) the lower-working-class children talked more than the middle-class children. They did find consistently at five years old, and even more so at seven years, that middle-class children were more explicit than working-class children not only when both the researcher and the child were looking at the pictures (as in the Trotin context) but also in the other contexts used in the interview. Much of the ensuing analyses make delicate probings into explicitness and show to my certain satisfaction that middle-class children are more explicit, use a wider frame of reference and are likely to generalize more than lower-working-class children in *the five contexts discussed*. But it is still worth pointing out that although these contexts can be seen and described separately by adult researchers, all the contexts took place in a formally structured interview and may not have been seen as so different by the children.

We are left at the end of this book with the notion that there are at least two main ways of employing a structure of meanings and realizing language from that structure. Bernstein and his colleagues prefer for certain empirical and theoretical reasons to see a high correlation between main use of a code and social class. Bernstein in his foreword says some very interesting things on the basis of this view about language and social meaning, concerning schools and the almost automatic mutual legitimization of the school by the middle-class child and of the middle-class child by the school through the agency of a shared language.

But the remaining question still lurks at the back of my mind even after reading this excellent book—are the analyses really correlating with social class or are they really looking at different child rearing practices which are due as much to educational differences as anything? To examine this aspect it is necessary to go back to the first volume in the series by Brandis and Henderson to see that in the formula for constructing the social class index, the education of the child's parents is given three times the importance of their occupation. So are we really not looking so much at differences of social class as differences in the language practices of parents who were well educated? If this is so, then these differences in language use or in language codes are brought about by education (or the lack of it) rather than social class. A lack of education is something we can make provision for relatively easily; and so Bernstein's theory no longer has that awful deterministic ring about it.

Labov's *Language in the Inner City* is the first English edition of the book published in 1972. Labov, in a series of innovative studies, gives an unrivalled overall picture of Black English Vernacular as used in New York in relation to other dialects of English. He shows conclusively that BEV has a complex rule structure which is in some cases more complex than Standard English; he develops the theory of variability using the detailed analysis of the copula and the negative in BEV. In terms of the educational needs of the children of the inner city he shows that it is no good to plan any intervention programme on the assumption that the black children are verbally deprived; indeed he indicates that they have a rich variety of language at their command in his studies of ritual insults and narrative. This book is an enduring monument to careful scholarship in the area of sociolinguistics with its impeccable methodology, contribution to the theories of variability, verbal deprivation, discourse analysis, and its important note of caution for the education of dialect groups.

Sinclair Rogers

Thematic volume

Schooling and Society, Studies in the History of Education
edited by Lawrence Stone
Johns Hopkins University Press, £11.20
ISBN 0 8018 1749 8

The centre which bears his name was founded at Princeton by Shelby Cullom Davis, a former Princeton graduate, investment banker and United States ambassador to Switzerland. Davis gave $5m to his old university for the study of history and a xerox of the cheque is framed in the faculty common room in Dickinson Hall to commemorate this astounding munificence.

The centre, which began operations in 1969, finances some eight fellows a year and invites visitors to give fortnightly research seminars. This is facilitated by Princeton's position within the East Coast academic megalopolis. Similarly the proximity of the Davis Centre to the Institute of Advanced Studies within the Princeton campus enriches this cross fertilization which is further enhanced (so I am told) by good eating and conviviality as a proper part of the academic tradition. For three or four years at a time the centre focuses on some broad theme and their opening one was the history of education. This has resulted in the splendid collection of essays on universities published in 1974 and now this second volume, *Schooling and Society*. Both publications are edited by Professor Lawrence Stone, the director of the Centre to whose creative dynamism it owes much of its signal success.

The essays reflect a range of approaches to the subject from the traditional through to an austere exercise in the "new" economic history. For many this latter will be one of the most striking studies in the volume. In it Peter Lundgreen argues that the increase in education in Prussia in the later nineteenth century contributed very little to its economic growth. He makes three tests, first measuring the stock of education in the work-force, second calculating the return on investment and third using a production function approach devised by A. P. Thirlwall. All three led to the conclusion that the increase of education from the 1860s to the 1910s contributed only about 2 per cent of the overall growth of the economy. At first sight this is sharply at variance with received opinion about the strength of the German economy before 1914 being underpinned by an outstanding education system. But Lundgreen insists that he is concerned with the *increase* in education not its level. That is to say, where a level of education is fairly static in a society, even when it is of a very high level indeed, these tests would still show its contribution to economic growth as negligible. The fact that the *increase* plays a small part in growth does not prove that the overall high level was irrelevant to the German industrial economy.

Less controversial and perhaps the most satisfying section in the book is part three which consists of two nicely matched, substantial essays on Princeton by Professor Howard Miller and on Göttingen by Professor James McClelland. Princeton emerged as an early Presbyterian academy, a vehicle for the introduction of the Scottish Enlightenment into the colonies, strongly motivated by Evangelicalism. Using the biographical dictionary of Princeton alumni, which is being compiled under the auspices of the Davis Centre, Miller shows that a tenth of colonial Princeton students were sons or nephews of clergy. By contrast eighteenth-century Göttingen boomed on its frank appeal to the young bloods of the nobility combining gentlemanly studies in law and history with *Ritterakademie* accomplishments in riding and fencing. Halle and Erlangen likewise flourished as new universities tapping this market.

English educational history is fairly briefly treated though in varied fashion. Peter Clark—the only British contributor—interestingly shows a clear rise in book ownership in three Kentish towns from 1560-1640 such that 40 per cent of men were owners by the later date. He attributes this to rising literacy but points out that the books were predominantly religious providing little evidence of a rich secular bourgeois literary subculture. English themes of the late eighteenth and early nineteenth century are also dealt with. Carl Kaastle reflects on the existence of a "Tory" opposition to mass education in these years and its absence in America. He suggests that America had a higher literacy base and did not fear it and its potential connexions with "revolution" as much as some Britons did. Finally, Thomas Laqueur rightly draws our attention to the growth of private schools for the working classes which he envisages arising rather like neighbourhood butchers' shops. He considers them more important than the Church schools and "the cutting edge" of educational advance. One sympathizes accordingly with his difficulties in finding much hard evidence about them due to their ephemeral nature.

There is an interesting pair of essays on America in the early twentieth century. Professor Troen suggests that concern about the unemployed adolescent led to more demands for and provision of vocational education between 1900-1920, the cash register, telephone and pneumatic cash chute removing mainly unskilled jobs for vulnerable early leavers. Their successors in the elementary schools in the inter-war years were not so likely to receive a "progressive" education as reformers had hoped. Professor Zilversmit shows how slight was the impact of progressive education before 1940 due to the Depression. They are all genuinely interesting and lack of space rather than of appreciation restricts further discussion here.

This is an important and interesting book not only for historians of education but for social, economic and religious historians who will profit from respective chapters according to their interests. The Davis Centre has now shifted its focal theme to the family and I hope we may look forward to such similar volumes to enlighten and stimulate.

Michael Sanderson

The Raising of the Cross by Francesco Solimena, taken from Catalogue of Italian Drawings in the Art Museum, Princeton University, by Felton Gibbons, published in 2 volumes by Princeton University Press at £48.50. Dating from 1395 to 1840, the collection gives a survey of Italian draftsmanship in more than 900 drawings.

Liberal identity crisis

The Liberal Mind 1914-1929
by Michael Bentley
Cambridge University Press, £9.50
ISBN 0 521 21243 X

Opposition for the Liberal Party was a search for identity: the holy grail of liberalism had to be sought out afresh, shown to the people and born again through the portals of power. Mystical and high-flown metaphors of this sort are not misplaced for, as Dr Bentley shows in his elegant essay, Liberals often referred in such terms to the liberalism which they claimed was their unifying force: "the inner tabernacle", the "broad church", "a spirit, an attitude, an atmosphere", "a temper, an attitude, a state of mind". It is the parameter of this "state of mind" which Dr Bentley sets out to discover in the period between the start of the First World War and the election of 1929.

His method is first to study the correspondence of the Liberal political elite, and second to give a series of well executed portraits of ancillary Liberal groups: the university intellectuals, the non-conformists, the Liberal anglicans, the summer schools, the journalists. He excludes the details of organization and a systematic consideration of the attitudes of Liberals to the issues of the day, for his real interest is in relationships rather than policies as such. He makes a "restricted statement about the political world which Liberals believed they were living in between 1914 and 1929 and the frame of mind through which their vision found its focus."

On the whole the method works well for this period. Relationships were about all most Liberals had left. Whatever our view of the causes—and Bentley's terms of reference exclude their discussion except insofar as Liberals themselves discussed them—these were disastrous years for the Liberals.

They were familiar enough with opposition, despite the great years of 1905-15. The cast of personalities for the post-war years was much the same as for the post-Gladstonian opposition period of 1895-1905. Some found themselves back in their old opposition roles—Herbert Gladstone recalled as party organizer, Asquith leader and restrainer of one group, Lloyd George of another. Churchill had come and gone, but Crewe was still there offering whiggish advice—Grey as angular as ever, Rosebery and Arthur Acland still on the sidelines, C. P. Scott and J. A. Spender writing leaders (the latter foolishly resigning from the *Westminster Gazette* in 1922); even John Morley was still alive and commentating. Campbell-Bannerman and Sir William Harcourt were dead, the Webbs had left and Haldane was preparing to go, but these were not deaths or defections necessarily fatal for the party.

Yet there was a fundamental difference. The search for identity between 1895 and 1905 had been the self-analysis of a party certain again to take power: rows about the balance of factions were rows about the balance of a future ministry; disputes about policy were disputes about the potential action of a government. But for postwar liberalism the focusing force of future office had disappeared. As Bentley shows, the cast of the Liberal mind had become merely self-regarding and elegiac, incapable of responding to the challenge of the new political community of a universally franchized Britain. Perhaps the most striking aspect of Bentley's survey of the interests and preoccupations of the Liberal elite is the complete absence of a thorough-going attempt by the leadership to account for the party's lamentable electoral performance. "We seem to have polled over three million votes, which is not bad for a dying party set between the upper and nether millstones" was Asquith's comment on the 1924 election. Its complacent irony sums up a generation which believed itself cheated of its rightful place, but found itself unable to do much more than attempt to appear stoical about its fate. Even Lloyd George was only a partial exception.

Was this malaise a necessary consequence of the form of the prewar Liberal Party, or was it merely the fault of individuals? Bentley does not attempt a comparison, and is, in any case, not setting out to discuss the party as a whole. None the less, his book certainly shows that the party leadership was as entrenched in the social as well as the intellectual framework of pre-1914 Britain as the Welsh Liberals examined at a more local level by Dr. K. O. Morgan in his article in the *Welsh History Review*. As Bentley observes: "between the world and Liberal knowledge of it there was the Liberal mind with its principles, its personal associations, its poisons", and there is not much evidence to suggest that the mind of the leadership was much out of phase with that of the party as a whole.

There was, however, one striking development taking place in the 1920s: the Liberal economic revolution centred on Keynes. Certainly this owed nothing to "the Liberal mind" as defined by the party leadership, but it did constitute the chief British contribution to "the Liberal mind" of the western world in this century, and more consideration of its genesis among the Liberal intelligentsia in the twenties would have been welcome. It may be unfair to request this, for it might have overbalanced Bentley's neat study, which is sympathetic and well written, with little of the mannered obscurantism which sometimes characterizes the writings of the Cambridge school.

H. C. G. Matthew

From caste corruption

Inside India Today
by Dilip Hiro
Routledge & Kegan Paul, £
ISBN 0 7100 84528

Packed with a great deal of information, insight and this study presents a view of contemporary India ries. Politics here, unlike in other studies, has been broad socioeconomic setting subjects range from caste rural India and the profe slum clearance in big cities stitutionalized corruption lence, including that by the army and the police have been examined, appropriate, in their historical or international context.

From part one on "India" clearly emerges of a society stratified and linguistic, ethnic communities which are conflict with one another describes the Congress dependence on the urban elite for money and electoral part and the major political government in the fields of trialization and agrarian which reflect the interests of dominant classes. The conclusion is that, given the base of the ruling party reforms which would poor but involve action the power and influence rich peasants and big could not be implemented Government.

Parts three and four various alternatives to the party from the Communist India (Marxist) and the on the left to the Jan Sangh Shiv Sena on the right. The shows that while the parties operate within the political system, the parties present a challenge system itself; their power would involve change class base of the government would facilitate reforms so necessary for relief to the poor and egalitarian society.

Although most of the book written before emergency imposed in June 1975, attempts to answer the why such a measure was for the survival of Mrs regime and to provide account of the repressive followed by the Government this period.

Primarily aimed at readers, the book is well and referenced; despite the of material it contains quality of its analysis, the not pedantic.

Biplab Dasg

A tenuous sense of self

Joseph Conrad: The Way of Dispossession
by H. M. Daleski
Faber & Faber, £5.95
ISBN 0571 10816 4

Joseph Conrad: A Commemoration
edited by Norman Sherry
Macmillan, £7.95
ISBN 0 333 19109 9

Neither the formalities of an official year of commemoration nor increasingly sophisticated interpretations seem to curtail the vigour of Conrad criticism. What has changed is the mode of inquiry. Simple explications, background studies, and reassessments have given way to narrower studies of themes, influences, attitudes—the uncongenial subject (sex), various myths, colonialism, Polonism, ego psychology, epistemological scepticism, alienation, nihilism. Two dominant interests in recent years have been Conrad's nihilism (perhaps an outgrowth of J. Hillis Miller's cryptic first chapter in *Poets of Reality*) and Conrad's stay against the void, whatever sense of self (or selves) he could fabricate to sustain himself and his characters. Like P. J. Glassman's *Language and Being*, published last year, H. M. Daleski's *Joseph Conrad: The Way of Dispossession* starts with Conrad's "tenuous sense of self" (the phrase is from Bernard Meyer's psychoanalytic biography) as a defining term for the fiction.

After remarking that "In Conrad studies there is now a need not so much for further demolition—or idiosyncratic reconstruction—as for a concern with the design of the main structure", Professor Daleski describes that structure as "repeated depictions of loss of self" through passionate abandon, physical panic, disintegration to vacancy, or suicide. He sees self-possession as the persistent anxiety of Conrad's vulnerable characters through the best of his work, from *The Nigger of the "Narcissus"* through *Under Western Eyes*, and there is a progression both in the kind of loss and the way to recovery.

In the first phase, from *The Nigger* through *Typhoon*, "manifestations of panic and of abandon" have the strongest hold on Conrad's imagination, characters like James Wait who have "no grit to face what's coming to us all" (Captain Allistoun's verdict) or who, like Jukes and Lord Jim, are dubiously endowed with imaginations that can transform "possibility into accomplished fact". In the second phase, from *Nostromo* through *Under Western Eyes*, characters with a fixed idea or obsession are vulnerable to "spiritual nullity" which is "compensated for by a counter-possession" (Nostromo, Charles Gould, Winnie Verloc); a few (Dr Monygham, Razumov) are able to repossess themselves through renunciation and self-effacement, demonstrating the paradox "that true self-possession is based on a capacity for abandon". Daleski states the same thesis more informally, and to my taste more effectively, by using the nautical image of "hanging on and letting go" for the first phase, and the Gospel injunction "One must lose the self to find it" for the few successful surrenders of the second.

So much for the general thesis, which when stated baldly suggests an ossification of categories, perhaps too much reliance on the inevitable critical tools, too little playing with them. Yet there is restraint and unobtrusiveness in the use of the categories, a reasonable equipoise between Daleski's scheme and Conrad's texts. Although the scheme is applied to only eight novels and stories written between 1897 and 1910, that limitation is explained by what Daleski judges to be the best of Conrad's work and by a shift of interests after his nervous breakdown following the completion of *Under Western Eyes*.

The thesis does not overburden some fine explication (for example, the interplay of vested interests among the Home Secretary, the Assistant Commissioner, and Inspector Heat in *The Secret Agent*) but it does lead to some questionable reductions. Marlow's lie becomes "an ordinary white lie, a humane expression of compassion" in *Heart of Darkness*; Captain Allistoun's moment of pity for Wait in *The Nigger of the "Narcissus"* is not a lapse into humanitarianism, and we are told that he should have reversed his order to prevent the incipient mutiny; and the usual speculations about the meaning of Stein's metaphor in *Lord Jim* collapse into the injunction that romantic man must play "the dream for all it is worth".

Within this study there are occasional signs that another subterranean pattern may be operating. Lord Jim's innate weakness is associated with original sin, and the language of renunciation and self-effacement suggests the hidden drama of a fall from grace and difficult redemption. Although these suggestions are tantalizing, they are never overtly developed, and Daleski spares himself the unavoidable discomforts of tangling with Conrad's attitude towards Christian myth.

A more important limitation on the real value of this study is the necessary premise that a thesis about self-possession somehow can contain "the design of the main structure". This is a structuralist assumption, though Daleski's analysis is not structuralist in method, and it must account for all the contingencies within the major work that cannot comfortably be accommodated to any central design. But such limitations apply to the whole genre of specialized criticism. Daleski buries himself in the texts, has the good sense to keep his thesis in its place most of the time, and uses it effectively to chart a way through many anomalies of character and action in Conrad.

Joseph Conrad: A Commemoration, edited by Norman Sherry, collects papers from the 1974 international conference on Conrad at Canterbury. Like its companion volumes from other conferences commemorating the fiftieth anniversary of Conrad's death, this collection has no single theme or method. The conference roster included many distinguished Conrad scholars of diverse persuasions and the papers show it. The resulting book, though necessarily eclectic, is thus very useful, both for indicating the range and temper of recent scholarship and for making many excellent essays generally available. Some of the critical essays dealing with Conrad's rhetoric, like those by Albert Guerard, Tony Tanner, Avrom Fleishman, and Ian Watt, develop ideas useful to all careful readers of Conrad; others are comparativist, linking Conrad with Nietzsche, Rousseau, Dostoevsky, Russian history, French symbolism and impressionism.

The book is rounded out by an explanation of the difficulties encountered in editing Conrad for the forthcoming Cambridge edition, a summary of the vast Pinker correspondence, evidence for finding an elusive birthplace, speculations about the influence of the Polish language, and a detailed survey of the attitudes of Polish critics toward Conrad. Here is true wealth for Conradians, in an attractive format meticulously organized and edited by Professor Sherry.

Robert Foulke

The shadow of a shadow

The Violet in the Crucible: Shelley and Translation
by Timothy Webb
Oxford University Press, £12.00
ISBN 0 19 812059 1

Why did Shelley translate so much? In his thorough study, Dr Webb pays due heed to purely external incentives: he gives the poet's friends credit for encouraging Shelley's facility for translation. Peacock and Leigh Hunt helped with Greek, the Gisbornes with German and Spanish, Cornelia Turner with Italian. On Shelley's side, the incitements were both inspirational and escapist. The Platonist in him, however, saw poetry as a shadow of reality and translated poetry as merely a shadow of a shadow.

Hence in part his choices in Greek translation: he was loth to translate his favourite pieces lest he "throw the grey veil of his own words over the shining forms of Euripides". Even so, his choice of Homer's *Hymn to Mercury* derived from his own mercurial capacity to see the world "new-minted and unobscured by the veil of familiarity" such as, in his own work, the antics of the Witch of Atlas evince. Likewise, his own Promethean instinct prompted his version of *The Cyclops*: Euripides' monster, like Frankenstein's, embodied Shelley's sense of exile and rejection by society.

Besides the Promethean qualities Shelley sought and found in Goethe's Mephistopheles, Retzsch's illustrations to *Faust* provided a positive inspiration. Shelley none the less continued to be haunted by the sense of "how imperfect a representation . . . my words convey".

Shelley's sense of "a striking similarity" between *Faust* and *Il Magico Prodigioso* fired his translation from the Spanish play, as also did the parallels between Calderón's life and his own. Both men had dictatorial fathers and were themselves dogmatic, unworldly and convinced that this life was a dream. Here, also, Shelley's enthusiasm could not altogether dispel his Platonism: Calderón's plays perpetually "tempted" him "to throw over their perfect and glowing forms the grey veil of my own words."

It was not, however, to Spain but to Italy that Shelley succumbed. Dante he naturally envisaged as a Faust-figure "temperamentally opposed to authority" but he was influenced most by Dante the poet of love. Like Shelley, Dante often was torn between two women and sublimated his irresolvable dilemma by transforming the situation into an allegory of the mind.

In an Italian setting Dante required no translation. Hence Shelley's surprisingly few Dante versions and hence also *Epipsychidion*, which Webb happily describes as "bilingual in conception". (Indeed, Shelley translated certain of his own poems into Italian for Emilie Viviani.) With encouragement from Taafe and Medwin, however, he did produce his rendering of Purgatorio XXVIII 1-51 (*Matelda Gathering Flowers*) where, if "the sparseness of Dante was beyond his range", he achieved beauty with fidelity in spite of his Platonic assertion that "you might as well clothe a statue, as attempt to translate Dante."

Webb devotes two chapters to each author: one to the general relationship with Shelley's life and work, the second to a detailed discussion of the (freshly edited) translations. Among the many categories cited by Webb, Shelley's creative mistranslations are of particular interest: "We mortals let an ox grow old, and then/Cut it up after long consideration" is Shelley's "inaccurate but . . . lively" version of the textually problematic ll 158-9 of Homer's *Hymn* ("When cattle for cutting grow old,/It takes a long time and is hard to decide.") More conscious alterations include "those spirits who rebelled" for Goethe's "all spirits who deny".

Dante precludes the possibility of drawing, on the basis of Webb's exhaustive examination, too neat a distinction between the scholar's and the poet's procedures and the question I started with admits of no easy answer such as would explain the unwontedly sober Shelley these translations unveil. But we should be grateful to Webb for his substantial and original addition to the Shelleyan critical canon.

Adrian Flick

BOOKS

Blue-collar profession

Chemists by Profession: The Origins and Rise of the Royal Institute of Chemistry
by Colin A. Russell, Noel G. Coley and Gerrylynn K. Roberts
Open University Press, £9.50
ISBN 0 335 00041 X

Historians of science have recently become increasingly interested in the emergence of the professional scientist. In the development of modern science one of the crucial changes from the old pattern of dilettante amateur science has been the support given to the study of nature as a full-time occupation by selected individuals after specialist training. Broadly speaking it was in the nineteenth century that science became an occupation rather than a hobby. In France this change came after the French Revolution but in Britain the idea of gentlemen being paid to undertake scientific work did not find favour and thus Charles Babbage could complain in 1830: "The pursuit of science does not, in England, constitute a distinct profession, as it does in many other countries."

The possibility of a career in science brought with it problems of qualifications and the control of standards. In some areas such as medicine, pharmacy and chemistry, which had overlapping interests, for example in public health, there arose also a question of demarcation. In nineteenth-century Britain there was not only the problem of whether to employ a specialist but *which* specialist. This brings us to a further aspect of professionalization which could involve something akin to unionization. When analytical chemists found that work which they considered themselves best qualified to do was given to medically trained pharmacists on the one hand or to sanitary engineers on the other, they felt that some association was necessary to safeguard their interests. The Chemical Society of London, founded in 1841, might have fulfilled this need, had there not been an ambiguity about membership of that society. Some chemists tried to use their membership of the society (FCS) as a qualification, whereas the primary aim of the society was to promote the general advancement of chemical knowledge and publish a journal. The subject of this book, The Institute of Chemistry, was in a sense a breakaway organization in so far as it represented the commercial and industrial wing of chemists who grew impatient with academic colleagues, who took their status for granted and were principally concerned with contributing to scientific knowledge.

In seeking a new status for the chemist the Institute of Chemistry had to fight with the English language which used the same word for the analytical and industrial chemist and the apothecary. Whereas the French distinguished the latter as *pharmacien*, the Italians as *farmacista* and the Germans as *Apotheker*, the British public continued to be confused about what a chemist was. Indeed, according to the Pharmacy Act of 1868, the term chemist in the label "chemist and druggist" was reserved for someone who had passed an examination of the Pharmaceutical Society. The problem of terminology reinforces my feeling that the organization of British scientifically trained chemists was something of a special case.

The founding of the institute in 1877 can be related to other movements in contemporary British history including the founding of the Trades Union Congress in 1869. As far as science was concerned the Paris Exhibition of 1867 had given rise to a general concern with the poor provision for scientific education in this country. The Devonshire Commission was established to investigate, and in its reports of 1872-75 proposed large-scale government support for scientific education. Although the recommendations were not accepted by the government, the publication of the report did bring about considerable discussion on the organization of science in general.

In defining any profession training plays a key role and the facilities for chemical education in nineteenth-century Britain are summarized in this book, with particular emphasis on the Royal College of Chemistry founded in 1845. This was formed as an independent institution to train young men in the science of chemistry, which was increasingly recognized to be relevant not only to medicine but to agriculture and industry. Victorian England was then beginning to value examinations generally as a qualification for employment and their widespread use from the 1850s led the *Athenaeum* to speak of examinations as a *mania*.

In science the University of London degrees and the certificate examination for teachers made an important early contribution. Once the Institute of Chemistry was founded, the definition of professional competence in relation both to university degrees and its own examinations constituted a major part of its work. It was also a matter of lasting controversy to decide what value should be given to the purely academic training in science given in universities. The Institute emphasized from its very beginning the importance of *practical* training. Indeed the authors of this book occasionally speak of a professional chemist when they mean an industrial or practical chemist. For the institute, knowledge of chemical theory could not compensate for poor manipulative skills. Until it received its Royal Charter in 1885 the institute did not have any legal authority to grant certificates of competence in chemistry but even after that date it never acquired an absolute monopoly of chemical qualifications in this country.

In most histories of chemistry attention is given to rival theories and to the preparation of new compounds. In the history of applied chemistry more attention deserves to be given (as it is in this book) to the history of analysis. It was by his analysis of drinking water, of town air and of foodstuffs that the nineteenth-century chemist convinced the public that his special skills deserved support from rates and taxes. Chemists were slowly convincing industrialists: their raw materials and their products could be improved by analysis. The analytical chemist had to spend much time on routine tasks rather than advancing the frontiers of knowledge but on his work that the health and safety of a community could depend. Indeed the foundation of the Society of Public Analysts in 1874 could well have provided the organization which practical chemists (as they called themselves) were looking for. However, the society failed to deal with the question of qualifications.

In the later part of the book the part played by chemists in the First World War is discussed. This is a well known example of the use of science in war although it was by no means the first such. For the purposes of this study what is noteworthy is government recognition of a particular professional group. The book ends with a discussion of current problems of integrating the institute with the Chemical Society.

Some readers will be disappointed that the book makes no reference to the foundation of the Physical Society of London in 18 and the subsequent foundation of the Institute of Physics. Some interesting parallels might have been drawn which would have thrown light on the whole question of the professionalization of science in this country. The book could also be criticized for its poor perspective of the earlier history of science. However the main job it sets out to do—to provide a history of the Institute of Chemistry on the occasion of its centenary—it does well. It avoids the mistake of assuming that nothing happened before 1877 and then giving an exhaustive history to the present day. Instead it gives a series of studies, personal and organizational which provide a competent example of institutional history. The three authors, all specialists in the history of chemistry on the staff of the Open University, have had the benefit of the services of their own university press and particular help with illustrations. The result is a well produced book.

Although it is to be expected that the detailed discussion of the internal history of the Institute will be of greatest interest to its members, it would be a pity if this information carefully collected over many years did not also reach a wider audience, including perhaps some social and economic historians and educationists. For chemists in higher education it should provide a window into a world in which their science has justified itself by its demonstrable utility. Academic chemists can of course give other justifications for their work but when thought is being given to the teaching of science within a broader framework, such a view of the historical legitimation of chemistry is most opportune.

Maurice Crosland

Radiolytic techniques

An Introduction to Radiation Chemistry
by J. W. T. Spinks and R. J. Woods
Wiley, £15.95
ISBN 0 471 81670 1

Thirteen years ago Professors Spinks and Woods published the first general textbook on radiation chemistry. Much has happened since then: pulse radiolysis has provided a large body of quantitative data on solvated electrons and other short-lived species, radiolytic information on organic systems has expanded enormously and, more recently, information on radiolytic processes on a pico-second time scale has become available. This second edition has therefore involved almost complete rewriting.

At the time of the first edition the formation of solvated electrons on irradiation of polar solvents had just gained general acceptance. However, very little quantitative information on the properties of these species had appeared. The technique by which much of the kinetic data has been acquired, pulse radiolysis, had only just been developed and it received but brief mention in the first edition.

The arrangement of the material remains much the same in the new edition, but six chapters have been combined in pairs and a new chapter entitled "Radiolysis Kinetics" included. This enables the authors to cover the technique of pulse radiolysis on both the micro-second and pico-second times scales, as well as to discuss the kinetic aspects of radiolytic processes.

The revision of both text and references is substantial. Only the chapters dealing with ions, excited molecules and radicals, which are now combined, and that dealing with the radiolysis of solids, appear to have escaped attention. The latter chapter is, perhaps, the least satisfactory of a generally admirable treatment.

The two most important chapters, which deal with the radiolysis of water and aqueous solutions and of organic compounds, have been completely rewritten. Nearly half the 1,100-odd references date from the period between the two editions and there is at least one reference to work published in 1975.

The chapter on the applications of radiation chemistry gives an up-to-date account of the disappointing developments that have, in general, followed projects of this kind. Ionizing radiation still seems to have few economic synthetic uses but the applications to graft polymerization, the modification of the properties of polymers and to sterilization are now securely established.

A. G. Maddock

BOOKS

What chemists do

New Worlds in Chemistry
by Martin Sherwood
Faber & Faber, £6.95
ISBN 0 571 10753 2

The public has a right to call upon scientists for an explanation of what they are doing and why they are doing it (Sherwood). Martin Sherwood who is editor of *Chemistry and Industry* and was previously science policy editor of *New Scientist*, has written a book which undoubtedly represents an important contribution to informing the public about the major lines of development in modern chemistry.

After two chapters in which he outlines some of the basic principles of chemistry together with the instrumental techniques which are available to the modern chemist, he describes, in some detail, the contribution of chemistry to current investigations into how life on this planet began, the understanding of living systems and the continued development of the petrochemical industry. But perhaps even more fascinating than his description of the investigations is his account of chemistry's contribution to these areas during the last 30 years. One is continually reminded of the parts played by individuals, their brilliance, their dedication and their chance discoveries. The author is successful in showing chemistry to be an exciting and challenging human activity: one can share in the excitement of the race to synthesize insulin or the regret that the discoverer of polythene was not the person to recognize its potential and develop it.

The author then illustrates the "ubiquity of modern chemistry" with sections dealing with more specific lines of development such as glass technology, silicones, sources of energy, tribology, food chemistry, synthetic drugs and chemistry in art. Thus in the one book one may find references to such diverse topics as prebiotic synthesis, Ziegler catalysts, photochromic glass and thermoluminescent dating. A bibliography is supplied for each chapter.

Sherwood also discusses the negative side of chemistry and without shirking the issues or being alarmist, he attempts to put the present problems of pollution, conservation of resources and product screening into perspective. He recognizes the evolution of science, the need for chemists to interact with people from other disciplines and professions and the need for an informed public.

As to which section of the public Sherwood's book is aimed, this, (perhaps deliberately) is not made absolutely clear except that it is implied that it could be read by both chemists and non-chemists. And indeed, except in some of the biochemical sections where the themes inevitably have to transcend a high concentration of chemical names, the language should be acceptable to the "intelligent layman".

The book should also find a place in the general reading of chemistry students who, understandably, rarely find the time to explore the role of chemistry in modern society and who are not normally informed of the exciting investigations in progress until they have acquired all of the requisite theoretical knowledge. Perhaps a book such as this is a means of revitalizing the flagging interest of a student or even attracting A level science students into the chemistry profession.

Although the modern student would perhaps frown upon the use of units such as ångstrom and kcal and the use of some unsystematic nomenclature, these details do not detract from the value of the book, which deserves a more ambitious production than it has received. There is a token and very arbitrary use of unattractive diagrams to aid understanding of the chemistry. There are many more occasions on which diagrams and illustrations could have been used with good effect and it would have been a relatively simple task to improve the book, and so increase its impact, without detracting from its scholarship.

John Lazonby

Molecular matters

The Identification of Molecular Spectra
by R. W. B. Pearse and A. G. Gaydon
Chapman & Hall, £20.00
ISBN 0 412 14350 X

Spectroscopy has been of central importance in physical science for the past 50 years. It provided the impetus for the development of the quantum theory of matter, and this interplay between theory and experiment continues to the present day.

Most of our detailed knowledge of the structure of small molecules and of the forces which hold them together has been derived from the analyses of spectra. Furthermore, spectroscopy is a powerful analytical tool. The spectrum of a molecule is its most characteristic physical property, particularly when this spectrum consists of bands with detailed line structure. The observation of such a spectrum not only confirms the presence of a particular molecule, even in such remote sources as comets, but its detailed appearance is highly sensitive to its environment. Consequently molecular spectroscopy has been used for determining the composition, environment and evolution of matter in such disparate fields as astrophysics, upper atmospheric chemistry, electrical discharges, combustion, chemical kinetics and pollution.

Ever since the publication of its first edition in 1941 Pearse and Gaydon's *The Identification of Molecular Spectra* has been an invaluable guidebook for countless users of spectroscopic methods. The tables which are the main content of the book were prepared with the aim of circumventing the need for each spectroscopist to make an exhaustive literature search every time he carried out a new experiment. Several other works cite the constants derived from the analyses of large numbers of molecular spectra, but no other text provides the same practically oriented tabulation as Pearse and Gaydon.

The layout of this fourth edition is little changed, but it has been considerably extended and revised. The main 350-page table lists the stronger features of the gas phase spectra of over 650 molecules. Most of these are diatomic, reflecting the greater stability of their electronically excited states compared with those of larger molecules, although all known banded spectra of triatomic molecules are included. The coverage of larger, mainly organic, molecules is rather more random, and tends to reflect the knowledge of such spectra when the earlier editions were compiled. The modern literature on such compounds is clearly far too vast for inclusion. Subsidiary tables list the most persistent molecular band heads in order of wavelength, and persistent atomic lines. Twelve plates illustrate the spectra of about 50 of the more common spectra which are likely to be present in many new experiments.

The accompanying text is almost exclusively concerned with practical hints on the production and identification of the spectra of diatomic molecules, particularly in emission from flames, discharges, afterglows and shock tubes, using photographic recording. To some extent this aspect of the book is dated, since the main stream of spectroscopic research is rapidly changing in its experimental methods. Even so, I am sure that this fourth edition will prove as useful and essential to future spectroscopists as the earlier editions have been in the past.

R. N. Dixon

Crystal clear

Crystallography and its Applications
by L. Dent Glasser
Van Nostrand, £12.00 and £5.95
ISBN 0 442 30135 9 and 30136 7

Crystallography is concerned with the structure and properties of matter in the crystalline state and with methods for determining crystal structure. Crystalline materials can range from the complexity of a virus to the comparative simplicity of some metals and those interested in crystallography come from every branch of science and engineering.

It is in relation to this diversity of potential readership that the value of this book must be assessed. No book could be written to cover in an appropriate way the multifarious interests of all those concerned with crystallography and assessed against such a demanding requirement any book must fail. It is a pity, therefore, that in its all-embracing title the book promises so much for such a promise cannot be kept and this leads to disappointment. For example, the most widespread application of crystallography today is in the determination of crystal structures and there is a short chapter devoted to this topic. However, the last 10 years has seen a revolution in methods of solving crystal structures and the field is now dominated by a variety of direct methods based on mathematical relationship between the *a priori* unknown phases of structure factors. This important type of method is dealt with in one page which, with the exception of two brief sentences, could have been written in 1948.

To be fair, in her preface Dr Dent Glasser has declared the aim of highlighting applications other than the well-described and "glamorous" techniques of structure determination. We should, therefore, examine the work in terms of its stated objectives, albeit with slight grumbles about the Trades Description Act.

The topics covered include the geometry and architecture of crystals, crystal optics, the diffraction of X-rays, X-ray cameras and their use, the powder method and its applications, structure determination, neutron and electron diffraction and errors in crystal-structure analysis. There is a final brief chapter, interesting and unique to this book, entitled "A Crystallographic Cost-Benefit Analysis" which provides a useful insight into the benefits which can be gained from crystallographic studies relative to the investment of both time and money.

An important feature of the book, which is a strength in one way and a weakness in another, is its low mathematical content. A proper understanding of X-ray diffraction makes reasonably heavy demands on a mathematical background but such a background is frequently not possessed by those to whom the subject is of interest. Consequently a book like this one which treats the subject in a serious way, which gives the important mathematical formulae and their meaning but does not attempt to derive the formulae has a valid role to play. Nevertheless, mathematics is a language which enables certain ideas to be expressed clearly and succinctly and for those with a command of this language the normal written word is a poor substitute. While this book will be valuable to the non-mathematical reader and, indeed, can be recommended for such readership there are certainly better introductory works available for the mathematically competent.

The book is provided with many clear figures, included for their illustrative value to research workers who wish actually to use crystallographic apparatus and techniques. Another welcome feature is the provision of a number of problems, linked with the figures and based on the interpretation of X-ray photographs. There are very few errors in the text and none of them is of a serious nature.

M. M. Woolfson

BOOKS

Theory catches up

Frontier Orbitals and Organic Chemical Reactions
by Ian Fleming
Wiley, £8.95 and £3.95
ISBN 0 471 01820 1 and 01819 8

Paradoxically it has been one of the less satisfactory features of organic chemistry that an enormously successful start, based on essentially pragmatic considerations and accelerated by growing experience, resulted in practice far outstripping any fundamental theoretical principles. Only in quite recent times has theory begun to catch up; even then it has frequently been beyond the mental reach of most organic chemists, and often restricted in its application to relatively simple molecules.

Molecular orbital theory has gone some way to remedy the deficiency, but many—probably the majority—of practising organic chemists have still felt reservations, or experienced difficulties, in its use. The possibility of simplification came with the perturbational treatment of MO theory by Coulson and Longuet-Higgins, and its actual realization through the frontier orbital theory of Fukui. In his new book, Dr Fleming has brought this latter treatment within the reasonable compass of all organic chemists.

The book begins with a short, very helpful, chapter on molecular orbitals and frontier orbitals, followed by consideration of ionic reactions, thermal pericyclic reactions, radical reactions, and photochemical reactions. One, but only one, of the great merits of this book is the enormous range of different chemical situations that it covers.

By far the longest chapter is that on thermal pericyclic reactions, and one would perhaps have liked to see a little less coverage on this topic, and correspondingly more on some of the others. The author defends his choice, not unreasonably, on grounds of "the effectiveness of frontier orbital theory in this field".

Among the many cases considered under this head is the Diels-Alder reaction, which receives an extremely thorough and interesting treatment, illuminating considerably what has been a pretty confused situation in the past.

A good deal of simplification is also brought to the general study of radical reactions, not least to radical substitution of aromatic systems, another slightly "sticky" area. Use of the Klopman-Salem equation leads to a more satisfactory feel for the underlying chemical significance of hardness and softness in acids (electrophiles) and bases (nucleophiles), and this equation is also employed widely in discussing relative reactivity in other species.

One does not want to give the impression that the book is light bedtime reading for tired chemists, but Fleming writes extremely clearly and precisely, and his explanations are always thorough and convincing. He has gone to a great deal of trouble over the layout of the book, and the general arrangement and representation of reaction schemes, orbital diagrams and orbital coefficients is unusually good.

This is an important book which no self-respecting organic chemist can afford to be without.

Peter Sykes

Ubiquitous principles

Elements of Physical Chemistry
by J. William Moncrief and W. H. Jones
Addison-Wesley, £12.80
ISBN 0 201 04897 3

In a central and established scientific discipline such as physical chemistry, a considerable range of topics may be covered in undergraduate courses. Consequently, it has become extremely difficult to prepare a single text which not only clearly presents the basics of the subject but also illustrates their use in pure and applied research.

Various solutions to this dilemma have been tried. W. J. Moore's *Physical Chemistry*, which has served several generations of undergraduate chemists, has expanded to formidable proportions in its latest edition. Oxford University Press, on the other hand, have commissioned a large number of short texts, each dealing concisely with a particular area in the field, allowing students to build up a library gradually as their course proceeds. Moncrief and Jones's book could provide part of a third alternative.

Their book makes no claim to be a comprehensive undergraduate text. Indeed, the proclaimed objective is to supply the needs of undergraduates in North America, who are taking chemistry as a subsidiary option, especially the large number hoping to enter medical school. There is not a large, special market of this kind in Britain. However, a book describing the "elements" of physical chemistry could be valuable to first-year university students, who could subsequently expand their libraries by judiciously buying shorter texts on particular topics. This review has been written with this potential use in mind.

Moncrief and Jones consider their subject matter under three main headings: thermodynamics, reaction kinetics and quantum mechanics. Although they are presented in this order, the three parts are essentially independent, so little would be lost by reading them in a different sequence. The text is very well written, with virtually all the ideas expressed clearly and concisely. There is liberal provision of both well-chosen, worked examples and questions for the reader to sharpen his understanding on. The subject matter of many of these reflect the medical bias of the potential readership but do demonstrate how the physical principles of chemistry can be applied to a wide range of problems.

Just occasionally, the search for simplicity leads to unnecessary, and potentially confusing, oversimplification. In particular, the descriptions of the simple collision and transition state models of reaction could have been improved, without being much longer or much more sophisticated. Nevertheless, these are small blemishes in a well-produced and clear account of the foundations of physical chemistry. It is unfortunate that the use of cgs (centimetre, gramme, second) units may discourage its potential British readership. Certainly, the provision of an appendix, which makes no explicit mention of SI units but provides, for example, the factor for converting United States gallons to litres, is the one eccentric feature of a readable introduction to physical chemistry at university level.

Ian W. M. Smith

Reviewers

Peter Barnes is research officer in the child development research unit at the University of Nottingham;
Maurice Crosland, professor of the history of science at the University of Kent, is author of Historical Studies in the Language of Chemistry;
R. N. Dixon is author of Spectroscopy and Structure and is professor of chemistry at the University of Bristol;
B. T. Donovan, professor of neuroendocrinology at the Institute of Psychiatry, is editor of the Journal of Endocrinology;
Robert Foulke is professor of English at Skidmore College, New York;
Martin Hollis, senior lecturer in philosophy at the University of East Anglia is author of Models of Man;
H. C. G. Matthew, fellow of Christ Church College Oxford, is author of The Liberal Imperialists and editor of The Gladstone Diaries;
Sinclair Rogers, head of the department of communications at Ulster College, the Northern Ireland Polytechnic, is author of They Don't Speak Our Language;
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On concep

Elements of Quantum
second edn
by Frank J. Bockhoff
Addison-Wesley, £14.00
ISBN 0 201 00799 1

This is the second edition of first published in 1969, whi I was not previously fam quote from the first sentence author's preface, "this is intended to be a first intr for chemists to the concepts lates and applications of q theory, using the wave eq approach". The first nine c of the book cover the principles and techniques of tum mechanics, the next few ters deal with the hydrogen helium atoms, one chapter on complex atoms follows and book concludes with a brief cussion of molecular bonding lems. The book thus cov the same ground as Pauling son's classic text.

So far as the unde student in chemistry is m the book is limited in its u however, in what it do this is an outstanding te difficulties for students of this subject are both c and technical. The subj only be understood properly reader with a much sounder ledge of mathematics than possessed by most incoming students. Professor Bockhoff recognizes these difficulties deals with them admirably learner faced with illuminating conceptual difficulties will find book a mine of valuable anecdotes to keep the interested and historical to bring the subject to li the same time, it is a thor sound book, and can be regarded as a worthy succ Pauling & Wilson. Each is accompanied by suitable and the answers are supplied end of the book.

Alan Car

BOOKS

Anthropology's mission

Claude Lévi-Strauss, Structural Anthropology, volume two
translated by Monique Layton
Allen Lane, £6.50
ISBN 0 7139 1021 6

Beneath the many and by now familiar paradoxes which for some enlighten and for others betray the enterprise of structural anthropology, two seem fundamental. The first derives from the Rousseauian observation that while the study of men can be carried on close at hand among one's immediate fellows, the study of man must be undertaken at a distance. The second follows. We study other cultures, the more strange, the more distant in both time and space the better, above all in order to learn about ourselves. For Lévi-Strauss anthropology is a distant mirror in which we find, eyes screwed up and after much effort of concentration and will, a reflection; a reflection not so much of what we were but of the possibilities inherent in the recognition of a common humanity.

This collection of essays, the second volume of *Structural Anthropology*, brings together a number of pieces written by Lévi-Strauss over the last 25 years. Among these many have not previously been available in translation, others were written in English but have been buried in fairly obscure journals and two, *The Scope of Anthropology* and *The Story of Asdiwal*, have already had wide currency in English editions.

In the volume as a whole it is perhaps the assertion of anthropology's mission which penetrates most completely, leading both to a lament for a passing world, a critique of the developing one and above all to a demand for a science of man, modelled on the achievements of linguistics but firmly grounded in the interpretation and analysis of ethnographic data.

It is in this latter demand, significantly, that structural anthropology has collided most directly with its opposite number in the Anglo-Saxon tradition. It was all very well as long as Lévi-Strauss only claimed to be a philosopher or a mythmaker (as he does in *The Raw and the Cooked*) but once he laid claim to science then that, very properly, was a different matter. The problem, however, is not even that simple because clearly Lévi-Strauss is not claiming to be just one of these, but to be all three at once. His science is aesthetic, philosophical and mythical and equally, though more equivocally, art, philosophy and myth are science.

The clue to the riddle lies, reasonably enough, in the word science and in a basic distinction between the natural and the human sciences, though like any riddle the answer is never without ambiguity. Man has always been thinking equally well. The science of which we are so proud, and rightly so in Lévi-Strauss's view, is the product of a more or less continuous development not so much in man's actual capacity to think, to distinguish and to order his world, but in his inclusion of more and more of that world in his thought. The myths and rituals, the analysis of some of which takes up the most interesting part of this book, reveal above all that man is fundamentally a rational being. The science of man (the human sciences) differs in essence from the myths of man not at all—neither can be falsified—and our judgments of both are dependent not so much on our measurement of them against the facts but on their clarity, their coherence and their ability to speak eloquently of that which otherwise would go unspoken.

As Lévi-Strauss writes in his preface:

> Structuralism uncovers a unity and a coherence within things which could not be revealed by a simple description of the facts somehow scattered and disorganized before the eyes of knowledge. . . . But structuralism does not presume to contain the truth. It is content to say that things are a little clearer today than they were yesterday.

Whether this is an overly modest claim about man's capacity to know or an arrogant demand for the only correct path is precisely the point at issue. It may, of course, be both.

Nevertheless, within this epistemological haze the detailed analysis of kinship, myth and ritual shine like crystals, clearly formed structures, testimony to the capacity of man, including Lévi-Strauss, to make sense of a senseless world and testimony perhaps in the fact that beneath the manifest diversity of cultures—discontinuous and apparently incommensurable—conditions can be found for genuine communication and understanding.

Whatever one's final judgment of the man and his science it can never be said that either is ever dull.

Roger Silverstone

Land in the tropics

Tropical Soils and Soil Survey
by Anthony Young
Cambridge University Press, £15.00
ISBN 0 521 21054 2

The human population of the tropical lands is increasing rapidly each year and the need to increase agricultural and forest production becomes ever more pressing. Whether increased production is attained by exploiting virgin lands or through the application of new technologies and crops, there is the constant danger that the soil, a key factor, if production is to be sustained or increased, will become degraded or even lost through erosion unless everyone involved, from planner and politician to farmer and pastoralist, knows more about the limitations imposed by different soils and how to overcome them.

Our knowledge of tropical soils has advanced significantly only within the past 20 years and this knowledge should be imparted to ensure the conservation and proper use of this irreplaceable resource. In writing this book, the latest in a trickle of such texts to appear recently, Professor Young has used his first-hand knowledge of soils from many parts of the tropics together with his specific interest in the application of pedological knowledge to problems of land evaluation and agricultural improvement. His geographical training has led him to a deep understanding of the environmental context of soils and this broadly based approach can be recommended to readers coming to the subject from other disciplines.

The book is written for "those concerned with, or training for, field studies in tropical and sub-tropical soils". While intended primarily for use in the context of soil survey, the author's hope is that it will be useful to agriculturalists, economists and planners. I would expect this hope to be fulfilled for the contents are well organized, reasonably comprehensive, and the writing is forthright and has a welcome clarity. Sections within chapters are clearly labelled and there is an excellent index so that the book may be used quickly for reference purposes. This long book is divided into four parts dealing with soil formation in relation to the environment, natural processes and soil properties; a description of the main soil types and their agricultural properties; soil evolution and classification and finally soil fertility, survey and land evaluation.

The balance of the book is good as a whole though the contribution of ecologists has been neglected, for example, in the treatment of the interrelationships of soils with vegetation, termites and earthworms and fire. The absence of photographs of soils is unfortunate. The bibliography is well chosen though I would have preferred to see more discussion of and reference to the notable contributions made by many French pedologists. Selected references are given at the end of each chapter.

This does not deter me, however, from unreservedly recommending this book for purchase by all university, college and specialist libraries concerned in any way with tropical studies.

Robert Pullan

The quality of human life

Geography and Inequality
by B. E. Coates, R. J. Johnston and P. L. Knox
Oxford University Press, £6.50 and £2.95
ISBN 0 19 874070 0 and 874069 7

Human Geography: A Welfare Approach
by David M. Smith
Edward Arnold, £9.95 and £4.50
ISBN 0 7131 5924 3 and 5925 1

For some time the terms "counter-revolution", "relevance" and "radical geography" have enlivened geographical thinking. Change engenders change and it was almost predictable that the "quantitative revolution" would quietly take its place in the history of the development of the discipline, reduced to its proper dimensions, trimmed of excesses but nevertheless marking a new level of intellectual effort, not to say academic respectability. Once subsumed, the new way of thinking—to some at least—seemed a woefully inadequate way to deal with the world's ills. In studies of cities, for example, compilation of countless data resulting in most elegant models seemed remote from problems of inner city deprivation. But the mere fact that social ills vary spatially was a challenge to the geographical imagination.

The examination of this variable in man's condition has attracted increasing numbers of geographers coinciding with the seemingly counter-scientific philosophy that the social sciences can no longer pretend to be free from value judgments. Attention is focused on what is deemed relevant, research entails commitment, the measuring rod is "what should be" not "what is". To some this new "revolution" has a capital R, and their worst suspicions are confirmed by neo-Marxian interpretation. To others it is a welcome descent from the ivory towers, and merely an extension of the interest which many geographers have always had in "applying" the subject. It is, however, more than extension, because it implies a radical rethinking of our own discipline, not just the vicarious thrill of dealing in the real world. Concepts of social injustice and its spatial implications, segregation, inequalities of access, regional imbalance, are no longer peripheral to research interests, but central.

Both books mark a very important phase in this development. The disparate studies of nearly a decade are set in a comprehensive framework, and for this both teachers and students will be grateful, particularly as both texts are written lucidly and present their material with cogent arguments. *Geography and Inequality* is a very good introduction to the whole field of spatial inequality, which simply means that where one is born or lives may have an important bearing on the quality of one's life. The idea is explored descriptively—ie, as spatial patterns—at all scales, from global to national and then to urban. The patterns are then analysed, again with a wealth of examples, and lastly the authors examine the need for spatial policies and social engineering.

The book is in the tradition of the contribution geographers can make towards problem identifying and solving, and it is particularly clear on remedies which soften the impact of spatial inequalities, and those which imply a radical restructuring of society. Geography has much to offer, an important dimension — distribution — often ignored in political science. But that this still leaves a theoretical gap in geography itself may well be symbolized by the weakness of the conjunction *and* in the title: how strong is the interplay between geography and inequality?

Professor Smith has few doubts and is much bolder in his approach. The very first sentence in the preface—"This book offers a restructuring of human geography"—is quite uncompromising. He recognizes the immensity of such a task, and draws on models almost exclusively from welfare economics, but he has no doubts about the focal point he is wanting to illumine—it is the quality of human life. Moreover he wants this focus to replace the traditional centre of human geographical thought, the region: just as previously many aspects of geographical work were thought of as inputs to a holistic regional concept, so they could now contribute to the condition of man. The new study is human geography, and "this kind of restructuring is essential for problem oriented research."

Smith disclaims political bias. His is "not an activist position implying dedication to a particular political ideology . . . merely that if human beings are the object of our curiosity in human geography, then the quality of their lives becomes of paramount importance". Nevertheless his approach is quite explicitly based on welfare economics and one must accept the dominance of supply and demand, market equilibria and optimalities. The student is extremely well guided through this field as Smith builds up his theoretical framework in the first part of the book.

The second part is also largely theoretical, bringing in the questions of what is "better" or "best", and dealing with concepts of equality, justice and value judgments. Part three moves on to reality in a series of excellent case studies. Here there is some overlap with *Geography and Inequality*, for again all scales are dealt with, but most cases are the outcome of the author's own previous work.

The balance of the book does not necessarily mean that the theory is necessarily wrong, rather that it is essential to explore it thoroughly because it is so central to the thesis: but the theory does make more sense of the descriptive. It is consistent and well argued and persuasive. The summing up on human welfare geography is very convincing. This is a big and important book. Although it could be argued that welfare economics may be limiting as well as illuminative, Smith has used these concepts to initiate a rethinking of human geography as a whole in terms which are as important to the subject's future as to its ability to handle problems and policies of spatial differentiation in quality of life.

Emrys Jones

Demography and spatial analysis

Population: Analysis and Models
by Louis Henry
translated by Etienne van de Walle and Elise F. Jones
Edward Arnold, £9.95 and £4.95
ISBN 0 7131 5868 9 and 5869 7

Spatial Population Analysis
by P. H. Rees and A. G. Wilson
Edward Arnold, £27.50
ISBN 0 7131 5848 4

Although they are not numerous, British demographers have a long tradition and a justifiably high reputation for research. For example, their journal of demography *Population Studies* maintains a very high standard and attracts a wide international authorship (only two of the 15 contributors to the last issue are working in Britain). On the other hand, the impact of demography as a discipline upon higher education in Britain is small, whether one considers numbers of departments, chairs, courses, students or even textbooks—a matter which has exercised many committees, but to little avail.

In contrast, the multidisciplinary field of population studies has expanded and diffused so that students taking subjects as varied as agriculture and anthropology, geography and genetics, politics and planning often learn something about population. In some cases this is a response to increased awareness of the significance of changing population growth and mobility, not only in developing countries but in developed ones as well. Certainly the literature of population studies has proliferated much more than that of demography, but the demand for basic texts in demography has also grown. Apart from the volumes by the British demographers Cox and Benjamin, much of the market in this country has been met for many years by a variety of American texts by authors like Barclay, Bogue, Hauser and Duncan, Petersen, Spiegelman, Thomlinson, and Shryock, Siegel *et al.*

In recent years, however, the publication of a number of English translations of texts by distinguished French demographers like Sauvy, Pressat, Bourgeois-Pichat and now Henry have offered alternative reading to anglophones. All these authors have been instrumental in the growth of demographic analysis in France and in the evolution of the impressive *Institut national d'études démographiques* (INED), which has no parallel in Britain. Conceived in times of little or no population growth, when growth was regarded as necessary rather than noxious, the orientation of INED and therefore of French demography has differed from that of American demography, which developed in conditions of rapid growth and has been greatly concerned with its reduction. So the texts of French demographers have been of particular interest to Europeans.

Louis Henry is perhaps best known for his pioneering work in historical demography, which has flourished greatly in Europe not least in Britain, but he has also made considerable contributions to the measurement of fertility, especially with the help of models. Henry now offers English readers a very useful textbook of the techniques of demographic analysis, about one-quarter of which is devoted to population models. It is clear, succinct, full of European examples and less sociological than most textbooks of demography. Inevitably it will be compared with the English translation of Roland Pressat's larger and very successful text (*Demographic Analysis*, Edward Arnold, 1972) which has been translated into many other languages. The brevity of Henry's book will appeal to many students, but the two volumes do not overlap entirely and expand on different aspects. Certainly, this translation is a very welcome addition to the literature and will probably become popular.

Although the title of the volume by Rees and Wilson is not very dissimilar from that by Henry, the content is quite different. Like most demographers, Henry says hardly anything about spatial patterns (incidentally, his only map is a cartographic disaster) or spatial analysis of population. But those expecting a conventional volume of population geography are in for a surprise, for Rees and Wilson, two geographers at the University of Leeds, have written an extensive research monograph on a rather new aspect of spatial population analysis known as spatial demographic accounting; it focuses upon the population sub-model of urban and regional model systems, a broader research field in which the authors and their colleagues at Leeds have made substantial advances. In particular, they build population models for multi-regional systems within which migratory moves are specifically represented—and migration is another aspect of population analysis somewhat neglected by demographers.

Population accounts modelling has only a few other experts, notably Richard Stone and Andrei Rogers, and as yet not many exponents (hence the price). This research area represents an integration between spatial analysis and demography, but the undoubted innovations have yet to diffuse widely into these two disciplines. The authors deal mainly with theoretical concepts rather than practical analyses, but this book should justify their hopes by serving as a text for those concerned with the practical realities of population dynamics.

John I. Clarke

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Universities

AUSTRALIA

Applications are invited for the following posts, for which applications close on the dates shown. SALARIES (unless otherwise stated) are as follows: Professor $A20,984; Research Fellow $A14,147-$A18,589; Senior Lecturer $A19,082-$A22,307; Lecturer $A14,147-$A18,680; Senior Tutor $A12,148-$A13,864. Further details, conditions of appointment for each post, method of application and application form, where applicable, may be obtained from The Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF.

University of Adelaide

CHAIR OF SOIL SCIENCE

(Ref. 7.3)

The appointee will be the foundation Professor of Soil Science in the University of Adelaide. Applications are invited from persons active in various aspects of Soil Science or related disciplines including Plant Nutrition.

31 July, 1977.

University of Sydney

BODEN CHAIR OF HUMAN NUTRITION

This is a newly established Chair which will be located within the Department of Biochemistry.

30 June, 1977.

University of Melbourne

LECTURER (LIMITED TENURE) IN CHINESE HISTORY

Department of History

It is hoped to make an appointment in the field of Ming and early Ch'ing, but experts in other periods, who could also teach in the preferred area, would be considered.

30 June, 1977.

Australian National University

RESEARCH FELLOW —DEPARTMENT OF EXPERIMENTAL PATHOLOGY

John Curtin School of Medical Research

Candidates are sought who would become involved in one or other of the following research projects currently being performed within the Department (Acting Head: Dr W. J. Cliff). The Department is engaged in research into the structure and function of blood vessels and the lymphatic system, the inter-relations between endocrine and immune systems, the mechanisms and effects of cell and tissue injury, the chemical and morphological basis of cell motility, the in vitro study of tissue grafts and wound healing and the therapeutic effects of drugs on arthritis.

17 June, 1977.

La Trobe University Melbourne

School of Economics

SENIOR TUTOR/ LECTURER IN ECONOMIC HISTORY

Preference will be given to candidates whose interests lie in the nineteenth and early twentieth centuries without other restrictions as to field. The Head of Economic History is Professor E. L. Jones.

30 June, 1977

LECTURER IN ECONOMICS

Fields of economics covered in the teaching of the School include not only the various branches of macroeconomics and microeconomics, but also economic development, econometrics, mathematical economics, finance, accounting and management. Applicants specialising in any of these fields are invited to apply.

30 June, 1977.

LOUGHBOROUGH UNIVERSITY OF TECHNOLOGY

MANAGEMENT RESEARCH

Applications are invited from final year students and graduates who wish to undertake research in the University's Department of Management Studies leading to the degree of M.Sc. Candidates should hold or expect to obtain either a first or upper second class honours degree. A limited number of Research Council awards are available on the usual terms.

Research within the Department includes:
Financial Management and Accounting
Human Resource Management
Statistics and Operational Research
Production and Marketing
Business Policy and Economics

Further information may be obtained from Dr. R. H. Mole, Department of Management Studies, who should receive completed applications by 1 July, 1977.

Loughborough Leicestershire

UNIVERSITY OF YORK

TEMPORARY LECTURESHIP IN MATHEMATICS

Applications are invited for a Temporary Lectureship in Mathematics tenable for one year from 1 October 1977 to 30 September 1978. Candidates should have research interests in a branch of pure mathematics and some preference may be given to those with qualifications in Analysis. Salary on the scale £3,333-£5,655. It is expected that the appointment will be made within the lower half of the scale.

Six copies of applications (one only from overseas candidates), naming three referees, should be sent by Friday 17 June to the Registrar, University of York, Heslington, York, YO1 5DD, from whom further details may be obtained. Please quote reference number 6/3139.

THE OPEN UNIVERSITY

PART-TIME TUTORIAL AND COUNSELLING STAFF

Applications are invited for the following part-time posts to take effect from January, 1878:

COURSE TUTORS and TUTOR COUNSELLORS

In 1978 the University will be offering 117 courses in six broad areas: Arts, Educational Studies, Mathematics, Science, Social Sciences and Technology. The courses are based on an integrated structure of correspondence assignments, radio and television broadcasts and a regionally organized tutorial and counselling system.

COURSE TUTORS are responsible for commenting on and grading students' written assignments, for replying to queries about students' work and for conducting tutorials, normally at local study centres.

TUTOR COUNSELLORS have duties similar to Course Tutors in relation to the tuition of a group of students on one of the five Foundation courses. They also have counselling responsibilities for a larger group of students on both Foundation and higher level courses, where they are required to give study advice to individual students and to help in organizing discussion groups at local study centres.

The time needed for University duties varies according to individual contracts, but on average will occupy perhaps one evening per week or its equivalent for most of the year. Appointments will, in the first instance, be tenable for one year.

Applicants should be graduates or graduate equivalent. Recent teaching experience in further adult or higher education is highly desirable. For certain courses industrial experience would also be an advantage.

To obtain application forms and further particulars send a POSTCARD to the Tutors Office (THES), The Open University, P.O. Box 82, Walton Hall, Milton Keynes, MK7 6AU. Early application is advised and completed application forms should be submitted to one of the University's Regional Offices by the closing date of Friday, 17th June.

It should be noted that it is likely that existing members of the tutorial and counselling staff will be reappointed to many of the posts on continuing courses. There has been no previous recruitment, however, for the 12 courses to be presented for the first time in 1978.

(*Note:* Existing members of the University's part-time tutorial and counselling staff will be sent application forms before the end of May, as a matter of course.)

SIMON FRASER UNIVERSITY

Department of Sociology and Anthropology

Applications are invited from suitably qualified sociologists. The level of the appointment is open and a completed Ph.D. or, exceptionally, an equivalent publication record is a prerequisite. A strong recommendation would be demonstrated research experience and teaching interest in Canadian industrial society and social stratification in the Canadian context. Other things being equal, preference will be given to the candidate capable of teaching a methodology course. It is hoped to make the appointment as soon as possible.

It is the University's policy that where candidates have nearly equivalent qualifications and one has Canadian experience, the latter should be preferred. In this context, Canadian experience includes Canadian citizenship, or extensive training in Canada, or extensive academic experience within Canada.

Additional inquiries and applications, including an up-to-date curriculum vitae with the names of three referees, should be addressed to:

The Chairman of the Appointments Committee
Department of Sociology and Anthropology
SIMON FRASER UNIVERSITY
Burnaby, B.C., Canada V5A 1S6

UNIVERSITY OF CAPE TOWN

FACULTY OF MUSIC

SENIOR LECTURER IN MUSIC (VIOLIN)

Applications are invited for this post in the College of Music, currently vacant. Appointment, according to qualifications and experience, will be made on the salary scale R8,450 x 350-R9,900 x 450-R11,250 per annum, plus a pensionable allowance of 10 per cent of basic salary.

Applicants should be concert violinists, currently performing, and must have had teaching experience at the tertiary level.

The successful applicant will be required to organise the work of the string section; to teach violin playing to students individually, and to oversee the training of young pupils in groups; to lecture on teaching method and repertoire of the violin, and to coach student groups in chamber music. Apart from solo string quartet and general chamber music performing, the successful applicant will, among other things, be required to train the string orchestra and lead the University orchestra.

LECTURER IN MUSIC (CELLO)

Applications are invited for this post in the College of Music, currently vacant. Appointment, according to qualifications and experience, will be made on the salary scale R6,300 x 300-R8,100 per annum, plus a pensionable allowance of 10 per cent of basic salary.

Applicants should be concert cellists, currently performing, and must have had teaching experience at the tertiary level.

The successful applicant will be required to teach cello playing to students individually and to coach chamber music groups; also to lecture on teaching method and repertoire of the cello. Apart from solo, string quartet and general chamber music performing, the applicant will, among other things, be required to coach and lead the cello sections of the string orchestra and the University orchestra.

Applicants for either of the above posts should submit a curriculum vitae stating present salary, when available if appointed, and the names and addresses of three referees.

Memoranda concerning the positions and general conditions of service should be obtained from the Registrar, Room 1, University of Cape Town, Private Bag, Rondebosch 7700, by whom applications must be received not later than 31st July, 1977.

University of Wales

UWIST

DEPARTMENT OF PHYSICS, ELECTRONICS AND ELECTRICAL ENGINEERING

RESEARCH ASSOCIATE

for one year, to work on USAF sponsored project on transient-spectral effects in the output of GaAlAs injection lasers.

Salary up to £3,761

Requests (quoting Ref. THES) for details and application form to Personnel Section (Academic), UWIST, Cardiff CF1 3NU. Closing date: 16 June, 1977.

UNIVERSITY OF ZAMBIA

Applications are invited for posts of SENIOR RESEARCH FELLOW/RESEARCH FELLOW in THE RURAL DEVELOPMENT STUDIES BUREAU. [illegible] must possess post-graduate qualifications in the Social [illegible] and preference will be given to those with experience of economic research into the [illegible] sector problems in a developing country. Areas of interest are small farmer development, administration of rural services, pricing and marketing and appraisal of rural projects.

Salary scales: Senior Research Fellow K6,324-K7,200 [illegible] Research Fellow K5,700-[illegible] (£1 sterling = K1.36). British Government may supplement salaries in range £[illegible]-£2,976 p.a. (sterling) for married appointees or £[illegible] (sterling) for single appointees (supplements are usually reviewed annually and normally free of all tax), and provide children's educational allowances and holiday visit passages; various allowances; superannuation and medical aid schemes; regular overseas leave. Detailed applications including a curriculum vitae naming 3 referees, should be sent by airmail, not later than 25 June, 1977 to the Registrar, University of Zambia, P.O. Box 2379, Lusaka, Zambia. Applicants resident in UK should also send 1 copy to Inter-University Council, 90/91 Tottenham Court Road, London W1P 0DT. Further particulars may be obtained from either address.

KELVIN GROVE COLLEGE OF ADVANCED EDUCATION BRISBANE, AUSTRALIA

Kelvin Grove College of Advanced Education is an autonomous College of Advanced Education specialising in the preparation of teachers for the fields of pre-school, primary and secondary education. It also provides a variety of in-service courses for Teachers together with a range of non-teacher education courses. There are currently four Academic Divisions within the College: Education Studies, Humanities, Sciences and Creative and Performing Arts.

Applications are invited for the position of:

HEAD OF DIVISION OF EDUCATION STUDIES

Ref. No. 77/A/11

Applicants for the position should have a higher degree, preferably at doctoral level, not necessarily in [illegible], specialist knowledge and expertise in some aspect of Teacher Education, a sound record of experience and leadership in an educational institution or system, demonstrated by proven performance in such areas as teaching, curriculum development, administration or research, together with the ability to lead and [illegible] a collegial team.

The successful candidate will be expected to take up duty as soon as possible after July 3, 1977.

SALARY: Within the range $23,346-$25,248 per annum.

CLOSING DATE: June 20, 1977.

Application forms and other relevant information concerning the position are available from the REGISTRAR, KELVIN GROVE COLLEGE OF ADVANCED EDUCATION, VICTORIA PARK ROAD, KELVIN GROVE, BRISBANE, QUEENSLAND, 4059, AUSTRALIA.

EDINBURGH

THE UNIVERSITY

DEPARTMENT OF GEOGRAPHY

UNIVERSITY DEMONSTRATOR

A University Demonstrator is required from 1st October, 1977, with qualifications in Physical Geography, within the range £2,9[illegible] to £3,7[illegible] according to age and qualifications.

Applications, giving names of two referees, should be sent by 10th June, 1977, to the University Secretary, Old College, South Bridge, Edinburgh EH8 9YL, from whom further particulars can be obtained. Please quote Reference 1013.

Universities continued

UNIVERSITY OF ZAMBIA

Applications are invited for a LECTURESHIP IN LAND USE STUDIES in the Department of Land Use Studies. Applicants should possess the following:

(a) A first degree in either one or more of the following subjects or graduate degree in integrated subjects: Geography, Biology, Geology, Agriculture; (b) A post graduate degree in Integrated Land Resources Survey or in an allied field.

The appointee will be expected to teach courses in the M.Sc. Programme in Land Resources Survey programme and to carry out research in aspects of Land Resources.

Salary scale: K4,248-K8,108 p.a. (£1 sterling=K1.361). The British Government may supplement salary in range £2,034-£2,676 p.a. (sterling) for married appointee or £144-£812 p.a. (sterling) for single appointee (supplements are usually reviewed annually and normally free of all tax), and provide children's educational allowances and holiday visit passages. Family passages; various allowances; superannuation and medical aid schemes; regular overseas leave. Detailed applications (2 copies), including a curriculum vitae and naming 3 referees, should be sent by airmail, not later than 20 June, 1977, to the Registrar, University of Zambia, PO Box 2379, Lusaka, Zambia. Applicants resident in UK should also send 1 copy to Inter-University Council, 90/91 Tottenham Court Road, London W1P 0DT. Further particulars may be obtained from either address.

UNIVERSITY OF SALFORD

Department of Mathematics (Statistics Group)

TWO RESEARCH FELLOWS AND A RESEARCH ASSISTANT

are required to work on SRC and SSRC funded projects, in statistics, involving the analysis of data and model building in (1) electrical breakdown data, (2) prediction methods with particular reference to the Social Sciences. The first will involve some collaboration with electrical engineers, the second will be particularly concerned with prediction studies in criminology.

Appointments will be for a period of two years from September 1, 1977, or as soon as possible thereafter. Applicants for the Research Fellowship should have substantial postgraduate experience in statistics (doctoral or equivalent). The Research Assistant will be mainly concerned with providing programming support for the projects, and applicants should be graduates with at least some experience of scientific programming. The salaries for these appointments will be between the range £2,904 to £4,811 per annum. USS, FSSU.

Informal enquiries concerning the research projects should be made to Professor J. B. Copas of the Department of Mathematics (telephone: 061-736 5843, extension 605). Application forms are obtainable from the Registrar, University of Salford, Salford M5 4WT, to whom completed application should be returned by June 20, 1977, quoting reference HA/149/THES

UNIVERSITY COLLEGE CORK

Department of Irish History

Full-time Appointment

The Governing Body invites applications for a full-time post as ASSISTANT LECTURER/COLLEGE LECTURER in the Department of Irish History. The appointment will be made at one of the levels mentioned according to the qualifications and experience of the successful candidate. It is envisaged that the successful applicant will be asked to participate in a new course of lectures through the medium of Irish.

The salary scales (as on 1 April, 1977) are:

College Lecturer £4,720-£5,659-[illegible]-£7,119 p.a.

Assistant Lecturer £4,052-£4,431 p.a.

A commencing salary above the minimum may apply in the case of an appointee with special professional experience.

Application form and further details of the post may be obtained from the undersigned.

Latest date for receipt of applications is Friday, 3 June, 1977.

M. F. Kelleher, Secretary.

BRADFORD

THE UNIVERSITY

LECTURESHIP in CHEMICAL PATHOLOGY/CLINICAL BIOCHEMISTRY

Applications are sought from suitably qualified graduates for appointment as Lecturer in Chemical Pathology within the newly developed Undergraduate School of Medical Sciences. Preference will be given to candidates possessing relevant experience in the areas of clinical pathology and clinical biochemistry and with experience in the clinical field.

Salary within scale: £3,333 to £6,[illegible] per annum. Superannuable.

Further particulars and application forms obtainable from the Registrar, Ref. [illegible], University of Bradford, BD7 1DP.

BELFAST

THE QUEEN'S UNIVERSITY

POSTGRADUATE STUDENTSHIP

MARINE BIOLOGY

The Northern Ireland Electricity Service has commissioned a biological study of the shore in the vicinity of the new oil-fired power station at Kilroot before and after it becomes operational. Arising from this study applications are invited for a Postgraduate Studentship, tenable for three years. The Studentship is valued at £1,270 per annum.

Further particulars may be obtained from the Personnel Officer, The Queen's University of Belfast BT7 1NN, to whom application should be made enclosing a full curriculum vitae and the names and addresses of two referees. Closing date: 17th June.

BATH

THE UNIVERSITY

SCHOOL OF ARCHITECTURE AND BUILDING ENGINEERING

CIVIL, STRUCTURAL AND BUILDING SERVICES GROUP

LECTURER

Applications are invited from Civil Engineers with interest and experience in some form of climatological work, with knowledge of measurement of climatological forces and probability based theories of structural and stochastic dynamics, together with an interest in their applications in Engineering and Building. The successful applicant will be expected to lecture formally to both Engineering and Architectural students, and to carry out research; limited consultancy work is permitted.

The initial salary will be in the lower part of the range £3,333 to £6,655 per annum.

Further particulars and application forms available from the Personnel Officer, University of Bath, Bath BA2 7AY, quoting reference number 77/43/THES.

BIRMINGHAM

THE UNIVERSITY

MEDICAL SCHOOL

ADMINISTRATIVE ASSISTANT

Applications are invited for a post of Administrative Assistant in the Registry. Good Honours degree and sound administrative experience, preferably though not necessarily in an educational institution required.

Appointment initially to Medical School Division where principal responsibilities will include servicing committees concerned with research and higher degrees, and administration of academic staffing and research grants.

Salary in Administrative IA scale (£3,[illegible] to £5,627) plus superannuation.

Application by 10th June, 1977, to Senior Assistant Secretary, University of Birmingham, P.O. Box 363, Birmingham B15 2TT, from whom further particulars and application forms may be obtained.

BIRMINGHAM

UNIVERSITY OF ASTON

DEPARTMENT OF MATHEMATICS

LECTURESHIP

Applications are invited for a LECTURESHIP in MATHEMATICS in the above department. Applicants should be applied mathematicians, preferably with research interests in one of the following fields: mathematical physics, statistics, engineering mathematics, solid mechanics, fluid mechanics.

The commencing salary will be within range £3,333 per annum to £5,015 per annum on a scale rising to £6,655 per annum.

Application forms and further particulars may be obtained from the Staff Officer (Ref. No. [illegible]), University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET to whom applications should be forwarded not later than 24 June 1977.

BIRMINGHAM

THE UNIVERSITY

FACULTY OF COMMERCE AND SOCIAL SCIENCE

DEPARTMENT OF SOCIAL ADMINISTRATION

Full-time LECTURER in SOCIAL ADMINISTRATION, with some teaching experience, required from 1 October, 1977, or from a date to be arranged. The main duties are to assist in the teaching and tutoring of honours and higher degree students and to provide a course in a special area of social administration.

Salary on scale: £3,333-£6,655 per annum plus superannuation.

Applications (3 copies) naming three referees by 16th June, 1977, to Assistant Registrar (Commerce), University of Birmingham, P.O. Box 363, Birmingham B15 2TT, from whom further particulars and application forms should be obtained.

Informal enquiries to Professors Lafitte or Collis, 021-472 1301, extension 2120.

Please quote reference [illegible] RR.

BIRMINGHAM

THE UNIVERSITY

FACULTY OF COMMERCE AND SOCIAL SCIENCE

DEPARTMENT OF ECONOMICS

RESEARCH ASSOCIATE

Applications are invited for a Research Associate to work with the Esmée Fairbairn Professor of Investment, M. A. King, from 1st October, 1977 or an agreed date for a period of up to two years. Candidates should have a good degree in economics and a capacity for handling quantitative material. Preference will be given to candidates with some knowledge of econometrics. The successful applicant will be involved in research projects concerning profits, saving and investment.

Salary: £2,[illegible] to £3,333 per annum plus superannuation.

Applications (three copies) naming three referees by 17th June, 1977, to Assistant Registrar (Commerce), University of Birmingham, P.O. Box 363, Birmingham B15 2TT, from whom further particulars and application forms should be obtained.

Please quote reference C/170.

BIRMINGHAM

THE UNIVERSITY

DEPARTMENT OF RUSSIAN LANGUAGE AND LITERATURE

Applications are invited from candidates whose mother tongue is Russian for the post of COLLABORATEUR ASSISTANT from 1 October, 1977. Appointment for one year in first instance but may be renewed annually. Salary £2,[illegible].

Applications (three copies), naming two referees, by 21 June, 1977, to Assistant Registrar (Arts), University of Birmingham, P.O. Box 363, Birmingham B15 2TT, from whom further particulars may be obtained.

CARDIFF

UNIVERSITY COLLEGE

Applications are invited for the post of

LECTURER IN THE DEPARTMENT OF LAW

Salary range £3,333 to £6,655. Duties to commence 1st October, 1977.

Applications (two copies), together with the names and addresses of two referees, should be forwarded to the Vice-Principal (Administration) and Registrar, University College, P.O. Box 78, Cardiff, CF1 1XL, from whom further particulars may be obtained.

Closing date 10th June, 1977.

Please quote reference 1266.

CRANFIELD

LECTURER IN SOCIAL POLICY AND ADMINISTRATION

Lecturer required to share in teaching and supervising professionally experienced students from the public and voluntary services developing M.Sc. research theses in social policy and institutions.

Candidates should possess a capacity to teach social policy informed by broader social theory, plus involvement, through research or experience, in one or more substantive areas of social policy.

University Lecturer salary scale (£3,333 to £6,655), with U.S.S.

Further details and application forms from The Secretary (Appointments), Cranfield Institute of Technology, Cranfield, Bedford MK43 0AL (telephone Bedford 750111, ext. 477), to whom application forms should be returned not later than 10th June, 1977.

DURHAM

THE UNIVERSITY

RESEARCH ASSISTANT IN ECONOMICS

Applications are invited for the post of Research Assistant in Economics from 1 October, 1977 for two years. Applicants should have a good degree in Economics and have some knowledge of statistics, but there are no restrictions on the special interests of the person appointed.

Salary on the scale £2,[illegible] to £3,[illegible] per annum with superannuation benefits.

Further particulars from the Registrar and Secretary, Old Shire Hall, Durham, DH1 3HP, to whom applications (three copies), naming three referees, should be sent by 10 June, 1977.

ESSEX

THE UNIVERSITY

LECTURER IN THE DEPARTMENT OF GOVERNMENT

Applications are invited for the post of Lecturer (£3,333-£6,655) in the field of Political Theory for appointment from 1 October, 1977. The post is not restricted to any specific field, but candidates will be expected to teach in the general area of interest covered by the Department: 17th-20th century political theory with an analytic rather than an historical emphasis.

Applications (three copies, quoting ref. CG/83 THES), including a curriculum vitae and the names of two referees, should be sent to the Registrar, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further particulars are available by 17th June, 1977.

ESSEX

THE UNIVERSITY

LECTURER IN THE DEPARTMENT OF HISTORY

Applications are invited for a post of Lecturer (£3,333 to £6,655) in History for appointment in October, 1977. The field of appointment is United States history, in the later nineteenth or twentieth centuries. Preference will be given to a candidate whose research interests are in social, intellectual, or economic history and who is able to participate in a course on European and world history in the later nineteenth to twentieth centuries.

Applications (three copies, quoting reference C6/84/THES), including a curriculum vitae and the names of two referees, should be sent to the Registrar, University of Essex, Wivenhoe Park, Colchester, CO4 3SQ, from whom further particulars are available, by 17th June, 1977.

ESSEX

THE UNIVERSITY

DIRECTORSHIP OF THE S.S.R.C. SURVEY ARCHIVE

Applications are invited from suitably qualified applicants for the Directorship of the S.S.R.C. Survey Archive at the University from 1st October, 1977. Duties will include actively encouraging the deposit and use of data in the Archive by social scientists and some teaching in the University.

Appointment will be to the University's academic staff and will be made at Senior Lectureship or Readership level (£6,443 to £7,981) or, for a suitably qualified candidate, at Professorial level (not less than £8,106). The appointment may carry tenure until retiring age or may be initially for two or three years.

Further particulars are obtainable from the Registrar (Room 0,010), University of Essex, Wivenhoe Park, Colchester CO4 3SQ, to whom applications (10 copies) should be sent by 13 June, 1977.

ESSEX

THE UNIVERSITY

LECTURERS IN THE DEPARTMENT OF LITERATURE

Applications are invited for two posts of Lecturer for appointment from 1st October 1977 (salary scale £3,333 to £6,655). The field of one appointment (ref. CS 85 THES) will be English and European Renaissance Literature; the field of the second (CS 86 THES) will be Modern English and European Literature. Preference in the latter post may be given to candidates with an interest in Romantic and Nineteenth Century Verse.

Applications (three copies, quoting ref. CS 85 THES for the Renaissance and CS 86 THES for the Modern), including a curriculum vitae and the names of two referees, should be sent to the Registrar, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further particulars are available, by 10th June 1977.

ESSEX

THE UNIVERSITY

TEMPORARY LECTURER IN THE DEPARTMENT OF SOCIOLOGY

Applications are invited for a one year post of Temporary Lecturer in Sociology (£3,333 to £5,219) to replace a member of staff on leave. Applicants should have research and teaching interests in the Sociology of the U.S.A. and Political Sociology.

Applications (three copies quoting reference CS 82 THES) including a curriculum vitae and the names of two referees, should be sent to the Registrar, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further particulars are available, by 17th June, 1977.

GLASGOW

THE UNIVERSITY

REGIUS CHAIR OF THE PRACTICE OF MEDICINE

The Secretary of State for Scotland invites applications for the Regius Chair of the Practice of Medicine in the University of Glasgow which is now vacant following the death of Professor Graham M. Wilson.

A note of the conditions of appointment may be obtained on request from: The Secretary, Scottish Education Department, 8 George Street, Edinburgh EH2 2PF.

Four copies of applications, accompanied by the names of 3 referees, should be sent not later than 30 July, 1977, to the above address.

GLASGOW

THE UNIVERSITY

CHAIR OF EDUCATION

Applications are invited for the Chair of Education, which will become vacant on 1st January, 1978, by the retiral of Professor Stanley D. Nisbet, M.A., M.Ed., F.R.S.E.

Further particulars may be had from the Secretary of the University Court (Room 18), The University of Glasgow, Glasgow G12 8QQ, with whom applications (20 copies) giving the names and addresses of three referees, should be lodged on or before 30th June, 1977.

In reply please quote Ref. No. 5045.

LANCASTER

THE UNIVERSITY

Applications are invited for the post of LECTURER in the DEPARTMENT of ART and ENVIRONMENT. Candidates should be creative designers and preferably possess qualifications in a two-dimensional field such as graphics, fabric design, etc. An essential prerequisite is a committed interest in the problems of the creative artist and designer in contemporary society, and in contributing to the teaching of a basic design course. An interest in twentieth century design history would also be an advantage.

Salary on the scale £3,333 to £6,655.

Further applications may be obtained (quoting reference [illegible]) from the Establishment Officer, University House, Bailrigg, Lancaster LA1 4YW, to whom applications (five copies) naming three referees, should be sent not later than 22 June, 1977.

LONDON

UNIVERSITY COLLEGE LONDON

DEPARTMENT OF GEOGRAPHY

POSTDOCTORAL RESEARCH ASSISTANT

Applications are invited for a postdoctoral research assistant to work on Recent Coastal Sediments from the Persian Gulf. Appointment is for one year from 1st October, 1977. Salary in the range £3,333 to £4,109, plus £450 London Allowance.

Applicants, who should have training in geochemistry and sedimentology, are requested to send a curriculum vitae and names and addresses of two referees by June 10, 1977 to Dr. C. Vita-Finzi, Dept. of Geography, University College London, Gower Street, London WC1E 6BT, from whom further particulars may be obtained. Please quote ref. THES 27/5.

LONDON

THE UNIVERSITY

LONDON SCHOOL OF ECONOMICS

LECTURESHIP IN SOCIOLOGY

Applications are invited for appointment from October 1, 1977, to a Lectureship in Sociology.

The appointment will be on the salary scale for lecturers of £3,333 to £6,655 a year plus £450 a year London Allowance and superannuation benefits. In assessing the starting salary, consideration will be given to qualifications, age and experience.

Applications should be received not later than June 20, 1977 by the Administrative Officer (Room H.616), The London School of Economics and Political Science, Houghton Street, London WC2A 2AE, from whom application forms are obtainable.

LONDON

THE UNIVERSITY

LONDON SCHOOL OF ECONOMICS

LECTURESHIP IN INTERNATIONAL HISTORY

Applications are invited for appointment from 1 October 1977, to a Lectureship in International History. Preference may be given to candidates with special interests in the field of European political ideas of the eighteenth to twentieth centuries or in the field of the diplomacy of international economic and financial relations. The successful applicant will be required to play a full part in the lecturing and teaching activities of the department including the general teaching of non-specialists over a wide range of topics and periods.

The appointment will be on the salary scale for lecturers £3,333 to £6,655 a year plus £450 a year London Allowance and superannuation benefits. In assessing the starting salary, consideration will be given to qualifications, age and experience.

Applications should be received not later than 20 June, 1977, by the Administrative Officer (Room H.616), The London School of Economics and Political Science, Houghton Street, London WC2A 2AE, from whom application forms are obtainable.

LONDON

THE UNIVERSITY

LONDON SCHOOL OF ECONOMICS

LECTURESHIP IN GEOGRAPHY

Applications are invited for appointment from 1 October, 1977, to a Lectureship in Geography within the field of Human Geography.

The appointment will be on the salary scale for lecturers of £3,333 to £6,655 a year plus £450 a year London Allowance and superannuation benefits. In assessing the starting salary, consideration will be given to qualifications, age and experience.

Applications should be received not later than 17 June, 1977, by the Administrative Officer (Room H.616), The London School of Economics and Political Science, Houghton Street, London WC2A 2AE, from whom application forms may be obtained.

LONDON

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY

SAFETY DIRECTOR

Applications are invited for the recently established post of safety director to ensure the implementation of the college's safety policy, to advise on safety matters and to analyse and assist the safety performance of the college.

Candidates should have a degree or equivalent qualification, preferably in the pure or applied sciences, and not less than three years' experience in a position of responsibility for safety matters, preferably in a large organization engaged in scientific or technical activity encompassing a wide range of hazards. Previous research or laboratory or relevant industrial experience is essential and experience of committee work, policy formulation, report preparation and occupational health is desirable.

Appointment will be made on either administrative grade III (£6,443 to £7,981) or IV (£8,106 minimum) according to qualifications and experience, plus London Allowance of £450 per annum. Superannuation under U.S.S. (or F.S.S.U. if already in membership).

Applications should be submitted by June 17, 1977, to M. J. Davies, Esq., C.M.G., O.B.E., M.A., Secretary, Imperial College of Science and Technology, London, SW7 2AZ, from whom further particulars and application forms may be obtained.

LONDON

THE UNIVERSITY

LONDON SCHOOL OF ECONOMICS

LECTURESHIP OR SENIOR LECTURESHIP IN STATISTICS

Field of interest: Econometrics, Economic Statistics or Time Series Analysis.

Applications are invited for appointment from October 1, 1977, or as soon as possible thereafter to a Lectureship or Senior Lectureship in Statistics, on the salary scale for Senior Lecturers of £6,443-£7,981 a year and for lecturers of £3,333-£6,655 a year, plus £450 a year London Allowance and superannuation benefits in both cases. One appointment only will be made. In assessing the grade of appointment and starting salary consideration will be given to qualifications, age and experience.

Applications should be received not later than June 17, 1977, by the Administrative Officer, Room H.616, The London School of Economics and Political Science, Houghton Street, London WC2A 2AE, from whom application forms and further particulars may be obtained.

LONDON

THE UNIVERSITY

QUEEN ELIZABETH COLLEGE

ADMINISTRATIVE ASSISTANT

Applications are invited from GRADUATES or holders of suitable equivalent qualifications for a post in the College Secretary's Department. A significant portion of the work will be on the personnel side (for which previous experience, perhaps in line management, would be very desirable), but the person appointed will also be expected to assist in various other activities which may include safety, use of buildings, and general administration.

Salary in the range £4,405 to £5,627 per annum plus London allowance of £450 per annum.

Application forms and further particulars from Mr. W. M. C. Rompas, Secretary, Queen Elizabeth College, Campden Hill Road, London W8 7AH. (Tel. 01-937 5411). Closing date 24th June, 1977.

WESTFIELD COLLEGE

LECTURER IN ENGLISH

Applications are invited for a Lectureship in English tenable from 1st October, 1977, or as soon thereafter as possible. Applicants should be specialists in the Middle English period. The appointment will be made on one of the bottom three points [illegible] plus £450 London Weighting allowance on the Lecturer Scale (£3,333 to £6,655 plus £450).

Further details from Dr. J. [illegible], Personnel Officer, Westfield College, Kidderpore Avenue, Hampstead, London, NW3 7ST, to whom applications should be submitted by 21st June, 1977.

LONDON

KING'S COLLEGE UNIVERSITY

LECTURESHIP IN PHILOSOPHY

Applications are invited for a Lectureship in Philosophy tenable from 1st October, 1977, or as soon as possible thereafter. Suitably qualified applicants in any branch of the subject will be considered.

Salary scale £3,333-£6,655 per annum plus £450 per annum London Allowance. U.S.S. contributions would be payable.

Further information about the post and the Department may be obtained from the Registrar, King's College, Strand, London WC2R 2LS, to whom applications, together with the names of two referees should be sent to reach him by June 15th, 1977, quoting reference THES 27/5.

MIDDLESEX

BRUNEL UNIVERSITY

SCHOOL OF MATERIALS

DEPARTMENT OF METALLURGY

LECTURESHIP IN METALLURGY

Applications are invited for a post of LECTURER in METALLURGY, effective from 1st September, 1977. The person appointed will be expected to take an active role in teaching and research, with particular reference initially to welding and joining processes and to non-destructive testing in the context of quality control.

Salary according to qualifications and experience, within the first five points (£3,333 to £4,[illegible]) of the Lecturer scale £3,333 to £6,655, plus £450 London Allowance, with F.S.S.U./U.S.S. benefits.

Application forms and further particulars from the Assistant Secretary (Establishment), Brunel University, Uxbridge, Middlesex UB8 3PH, or telephone Uxbridge 37188, extension 49.

Closing date 17th June, 1977.

READING

THE UNIVERSITY

LECTURESHIP IN THE DEPARTMENT OF CONSTRUCTION MANAGEMENT

Applications are invited for this Lectureship. The candidate will be required to lecture on building topics at first degree level, and to investigate the problem of post-degree or mid-career training. First degree in appropriate technology (or equivalent) is desirable and a good knowledge of the construction industry is essential.

The person appointed should take up duties on 1 October, 1977. The appointment will be for a fixed term of three years.

Further details may be obtained from the Registrar (Room 213, Whiteknights House), The University, Whiteknights, Reading RG6 2AH, by whom applications should be received not later than 20 August, 1977.

NEW ZEALAND

MASSEY UNIVERSITY

Palmerston North

LECTURER/SENIOR LECTURER IN PROCESS ENGINEERING

Applications are invited for the above-mentioned position in the Department of Industrial Management and Engineering. Applicants should have a suitable university degree, and research or industrial experience in one or two categories: either a general training or qualification in process or chemical engineering together with specialisation or research in some area (e.g. process control); or engineering qualifications with experience in production, or production management, as applied to processing.

The lecturing and research duties of the successful applicant will be in accordance with his qualifications and interests, but normally [illegible] in engineering or management at a [illegible]. There would be opportunity for research and assistance to industry.

The appointment would be at Lecturer level (NZ$9,365 to $11,465) or up to Step 1 of Senior Lecturer grade (NZ$11,865).

Further details of the position together with conditions of appointment may be obtained from the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF, or from the Registrar of the University. Applications close on 4th July 1977.

READING

THE UNIVERSITY

LECTURESHIP IN LINGUISTIC SCIENCE

Applications are invited for a LECTURESHIP in LINGUISTIC SCIENCE to replace Professor P. H. Matthews who will be on leave of absence. Candidates with interests in theoretical linguistics preferred but others not precluded.

The person appointed should take up duties on October 1, 1977. The appointment will be for a fixed term of one year.

Further information may be obtained from the Registrar (Room 214, Whiteknights House), The University, Whiteknights, Reading RG6 2AH, by whom applications should be received not later than June 10, 1977.

Universities continued

NEW ZEALAND

UNIVERSITY OF WAIKATO
PROFESSOR IN PSYCHOLOGY

The University of Waikato invites applications for a Second Chair in Psychology.

The Department of Psychology is in the School of Social Sciences and has an emphasis on social and applied aspects of human behaviour. The present staff of 14 includes specialists in social, clinical, developmental, cross-cultural, general experimental psychology and behaviour modification. The present teaching covers all levels of the usual undergraduate and graduate programmes and a postgraduate diploma in clinical psychology. This appointment is to strengthen the work of the Department generally in any or all of these areas and especially in supervision of graduate research. Preference will be given to applicants with a strong background in social, cross-cultural and applied psychology with considerable experience in research on a range of socially relevant problems.

Administrative duties, while primarily being internal to the subject, would reflect the emphasis in the University on interdisciplinary studies, the nature of the organisation in Schools of Study and the existence of a number of Research Centres such as the Centre for Maori Studies and Research, the Environmental Studies Unit and the Huntly Monitoring Project.

The appointment will carry a salary in the range (as from May 16, 1977): NZ$18,000 to NZ$23,000. A cost-of-living allowance of NZ$365 per annum is payable in addition to these salaries.

Details of the prescribed method of application and conditions of appointment are available from the Secretary General, Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF. Information about the University and courses of study is given in the University calendar but particular inquiries of an academic nature may be made to the Head of Department, Professor James Ritchie, in the University. Applications close on June 30, 1977.

READING

THE UNIVERSITY

LECTURESHIP in the AGRICULTURAL EXTENSION and RURAL DEVELOPMENT CENTRE

Applications are invited for a LECTURESHIP in social aspects of development in rural areas. Applicants should have a background in social or economic anthropology, or rural sociology, and preferably experience of relevant problems in the Third World.

The person appointed should take up duties on 1 October 1977. The appointment will be for a fixed term of three years.

Further details may be obtained from the Registrar (Room 214, Whiteknights House), The University, Whiteknights, Reading RG6 2AH, by whom applications should be received not later than 18 June 1977.

SHEFFIELD

THE UNIVERSITY

POSTDOCTORAL RESEARCH ASSISTANT IN THEORETICAL PHYSICS

Applications are invited for the post of S.R.C. POSTDOCTORAL RESEARCH ASSISTANT to participate in a project concerning the theoretical investigation of atomic dynamics in liquids. Tenable for two years from October 1, 1977.

Starting salary up to £3,761 a year on R. & A. Range IA.

Applications, including a curriculum vitae and the names and addresses of two referees, to Dr. T. Gaskell, Department of Physics, the University, Sheffield S3 7RH. Quote ref. R566/DI.

SOUTHAMPTON

THE UNIVERSITY

DEPARTMENT OF MATHEMATICS

Applications are invited for a LECTURESHIP in NUMERICAL ANALYSIS in the Department of Mathematics from 1 September 1977 or as soon as possible thereafter. Candidates should have a sound mathematical background and should be interested in the development of algorithms and the application of numerical methods to problems arising in other disciplines.

Further particulars may be obtained from D. A. S. Copland, The University, Southampton SO9 5NH, to whom applications (7 copies from United Kingdom applicants) should be sent not later than 30 June, quoting reference 249/A/THES.

SOUTHAMPTON

THE UNIVERSITY

DEPARTMENT OF MATHEMATICS

SEMICONDUCTOR THEORY

Applications are invited for a postdoctoral fellowship for theoretical work in a small research group to investigate recombination problems and solar cell degradation by use of quantum mechanics and statistical mechanics. There will be contact with experimental work at various centres. Subject to satisfactory performance, the post is tenable for up to three years, commencing as soon as possible.

Initial salary up to £3,761 per annum with annual increments.

Applications, naming two referees, should be sent by 15 June to D. A. S. Copland, The University, Southampton SO9 5NH, quoting reference 247/A/THES.

NEW ZEALAND

UNIVERSITY OF AUCKLAND

Applications are invited for the following appointments:

LECTURESHIP IN CIVIL ENGINEERING

Applicants should be well qualified in Civil Engineering, preferably with education at postgraduate level. Although not essential, professional civil engineering experience would be a considerable advantage. It is hoped to recruit a lecturer qualified in Fluid Mechanics and Water Resources. Preference will be given to candidates with research interest in mathematical and stochastic modelling of water resources, hydraulic engineering problems and water quality problems.

LECTURESHIP IN PAINTING

Applicants should be practising, exhibiting artists qualified by training and experience.

LECTURESHIP IN PRINTMAKING

Applicants should be practising, exhibiting artists qualified by training and experience. They should possess a thorough knowledge of traditional relief, intaglio, planographic and stencil printing techniques in a broad range of media.

LECTURESHIP IN SCULPTURE

Applicants should be practising, exhibiting artists qualified by training and experience. They should possess a thorough knowledge of both traditional and current media.

LECTURESHIP IN GERMAN

Candidates should have special qualifications in eighteenth and nineteenth century German literature and in teaching the German language. The lecturer may be required to take classes in literature or language at any level.

LECTURESHIP/SENIOR LECTURESHIP IN MANAGEMENT STUDIES

Applications are sought from candidates with qualifications and experience as academics, consultants or business managers. Preference may be given to applicants who have major teaching research and/or practical experience in the following fields: (i) International Marketing and Business Strategy for New Zealand; (ii) Business Policy Formulation and Financial Management; (iii) Technological Forecasting and Futures Research.

LECTURESHIP IN MATHEMATICS

The Department wishes to appoint a Lecturer in Probability and Statistics; preference may be given to candidates with interests in applied statistics and statistical computing.

LECTURESHIP IN THEORETICAL AND APPLIED MECHANICS

Applicants should be suitably qualified persons with academic and/or professional experience in any of the areas that fall within the scope of the Department's activities. Applications from persons with interests in Continuum Mechanics will be specially welcomed.

LECTURESHIP OR SENIOR LECTURESHIP IN TOWN PLANNING

Candidates must hold academic qualifications in Town Planning and Architecture, Landscape Architecture or Urban Design. They should also have had practical experience in a planning office.

LECTURESHIP IN ZOOLOGY

The successful applicant will be required to play a major role in undergraduate teaching in Basic Chordate form and function and may be asked to organise and supervise courses in both this and in other areas of Biology and Human Biology.

Salary. Commencing salary within the appropriate scale will be determined in accordance with qualifications and experience. At present salaries are supplemented by a cost of living allowance of NZ$365 per annum. Candidates are advised that all salaries may be amended shortly to include a General Wage Order of up to 5 per cent. Lecturer, NZ$9,800 to $11,100; Senior Lecturer, NZ$11,500 to $13,250. In exceptional circumstances this may be extended to $14,350.

Further particulars, conditions of appointment and application procedure are obtainable from the Association of Commonwealth Universities (Appts.), 36 Gordon Square, London WC1H 0PF.

Applications close on June 30, 1977, with the exception of the post in Town Planning which closes on July 31, 1977.

SOUTHAMPTON

THE UNIVERSITY

HUMAN MORPHOLOGY

Applications are invited for a post of LECTURER in HUMAN MORPHOLOGY. Some experience in teaching topographical anatomy is required. Research interests of the group include the reproductive and nervous systems and a research background in either of these areas would be an advantage.

Salary Scale: £3,333 to £6,655 per annum. The initial salary will depend on qualifications and experience.

Further particulars may be obtained from Mr. C. W. L. Swann, The University, Southampton SO9 5NH, to whom applications (seven copies from United Kingdom applicants) should be sent not later than June 3, 1977. Please quote reference 770/A/THES.

THE OPEN UNIVERSITY

COURSE ASSISTANT IN EARTH SCIENCES

A permanent post of Course Assistant in Earth Sciences is available in the Faculty of Science. The main duties of the post will be to provide a range of academic, administrative and editorial services to course teams producing multi-media undergraduate courses in Earth Sciences. Initially, the person appointed will have a particular responsibility for servicing the existing courses S266 Earth's Physical Resources, S2-3 Environment, S2-2 Geochemistry.

The successful candidate is likely to be aged 26 or older, with a first degree in some Earth Science subject area. Appointment will be within the Course Assistant salary scale £2,694 to £4,190 per annum.

Application forms and further particulars are available from Mrs. Judi [illegible], Personnel Department (CA), The Open University, Walton Hall, Milton Keynes, or telephone Milton Keynes 63868.

Closing date for applications: 10th June, 1977.

Fellowships and Studentships

THE BRITISH TRAVEL EDUCATIONAL TRUST

are offering a TRAVELLING FELLOWSHIP in 1978 to enable teachers in tourism or others who may have the necessary qualifications to carry out research by studying some aspect of tourism. Value of the fellowship is not more than £2,000 at the discretion of the Trust.

For details apply to Secretary, British Travel Educational Trust, Queen's House, 64 St James's Street, London, S.W.1.

LONDON

THE UNIVERSITY

REACTOR CENTRE

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY

S.R.C. RESEARCH STUDENTSHIPS

The Science Research Council is prepared this year to offer to suitable candidates a number of RESEARCH STUDENTSHIPS tenable at the University of London Reactor Centre. The value of these awards will be £1,470 per annum.

Applications are invited from candidates who possess, or expect to obtain, a good Honours degree in a relevant subject for research in the fields of:

(1) FAST REACTOR PHYSICS
(2) LOW ENERGY NUCLEAR PHYSICS
(3) RADIOCHEMICAL SEPARATION TECHNIQUES for trace element analysis of biological and environmental samples.

Further information and an application form can be obtained from: Dr. T. O. MacMahon, University of London Reactor Centre, Silwood Park, Sunninghill, Ascot, Berkshire, SL5 7PY.

SHEFFIELD

THE UNIVERSITY

CENTRE FOR CRIMINOLOGICAL STUDIES

RESEARCH FELLOWSHIP IN CRIMINOLOGY

Applications are invited for a RESEARCH FELLOWSHIP, sponsored by the Home Office. The person appointed will be expected to undertake research, at postdoctoral level, on an aspect of policing in England and Wales. Tenable for three years from 1 October, 1977.

Initial stipend in range £3,333 to £3,975 on R & A Range 1A, plus superannuation.

Particulars from the Registrar and Secretary, The University, Sheffield, S10 2TN, to whom applications should be sent by 20 June, 1977. Quote reference R 507/DI.

SHEFFIELD

THE UNIVERSITY

Applications are invited from GRADUATES of any University for ONE RESEARCH STUDENTSHIP tenable for two years from 1st October, 1977, in the FACULTIES of ARTS or LAW or SOCIAL SCIENCES or the DEPARTMENTS of ARCHITECTURE or TOWN and REGIONAL PLANNING (including technical topics). Present value £1,475 a year plus fees. Candidates graduating in 1977 will be considered.

Further particulars and application forms obtainable from the Registrar and Secretary, The University, Sheffield S10 2TN. Closing date: Friday, 17th June, 1977. Quote Ref. [illegible]

Polytechnics

Sheffield City Polytechnic

DEPARTMENT OF MECHANICAL AND PRODUCTION ENGINEERING

Applications are invited for the post of:—

PRINCIPAL LECTURER in PRODUCTION TECHNOLOGY

Required to teach at Degree level and conduct a research programme. Applicants should hold a higher degree or have appropriate industrial experience.

Salary Scale: £6432-£7134 (bar)-£8070

DEPARTMENT OF PROFESSIONAL STUDIES

RESEARCH ASSISTANT

Required for a two-year project involving the design of instruments to assess the levels of functional reading of pupils in their last year in the secondary school. The successful applicant, who will have the opportunity to register for a C.N.A.A. research degree, will probably have a first degree or equivalent qualification, and be a qualified teacher.

Salary Scale: £2661-£3039

DEPARTMENT OF EDUCATION STUDIES

RESEARCH ASSISTANT

Required for a two-year project involving an investigation into the attitudes and perceptions of unemployed school leavers. Applicants, who will have the opportunity to register for a C.N.A.A. research degree, should be graduates in education or one of the social sciences.

Salary Scale: £2661-£3039

Write for an application form and further details to the Personnel Officer, Sheffield City Polytechnic, Halifax House, Fitzalan Square, Sheffield, S1 2BB, to whom completed forms should be returned by 12th June, 1977. Please quote ref. THES.

PLYMOUTH POLYTECHNIC

Learning Resources Centre and Computer Centre

AUTOMATION OF LIBRARY SYSTEMS

A RESEARCH ASSISTANT is required to carry out work leading to the implementation of an automated circulation system and a serials control system.

Candidates should have a good degree with substantial content of Computer Studies/Science. Experience of COBOL/PLAN programming in library or similar data processing field will be an advantage.

The appointment is for an initial period of one year with the possibility of renewal for a further one or two years.

The commencing salary will be either £2,489 or £2,721 with annual increments. An additional £312 p.a. supplement is also payable.

Application form to be returned by 17th June, 1977, can be obtained with further particulars from the Personnel Officer.

PLYMOUTH POLYTECHNIC DRAKE CIRCUS
PLYMOUTH PL4 8AA

BRIGHTON

THE POLYTECHNIC

FACULTY OF EDUCATION STUDIES

TEMPORARY PART-TIME LECTURER
BIOLOGY
(14 hours p.w.)

£3,744—£5,986 (pro rata)

Applicants should be able to teach Certificate in Education level in one or more of the following areas:—

ANIMAL PHYSIOLOGY, PLANT PHYSIOLOGY, ECOLOGY.

Candidates should also be able to offer specialist teaching within one of these areas at B.Ed. (Honours) level.

Application forms and further details are obtainable from the Personnel Officer, Brighton Polytechnic, Moulsecoomb, Brighton BN2 4GJ. Telephone (0273) 693655. Closing date June 10, 1977.

HATFIELD

THE POLYTECHNIC

LECTURER I IN THE HISTORY OF IDEAS

Temporary Lectureship from 1 September, 1977, to 1 April, 1978, with the possibility of further extension.

Candidates must have a first degree preferably in Science or with a Science component. A Higher Degree in the History of Science would be advantageous.

Salary Scale Lecturer I, £[illegible] to £4,377 plus £150 per annum local weighting allowance and income supplement to a maximum of £312 per annum.

Application forms and further particulars from the Staffing Office, The Hatfield Polytechnic, P.O. Box 109, Hatfield, Herts, or telephone Hatfield 68100 extension 309.

Closing date: [illegible] June, 1977.

Please quote reference number 873.

LIVERPOOL

THE POLYTECHNIC

DEPARTMENT OF SOCIAL WORK

PRINCIPAL LECTURER

Applicants should be honours graduates with professional qualifications. The post is to teach professional courses. Applicants should have a thorough grasp of social work theory from a broad perspective, experience of social work practice, experience of teaching social work method, capacity to lead a team, and an understanding of research methods and preferably experience of research.

Salary scale, £6,202 to £6,954 (bar) to £7,800 plus payment of award, of up to £180 per annum, from April 1, 1977. Starting salary will depend on qualifications and experience.

Application forms and further particulars are available from the Personnel Office, Liverpool Polytechnic, Richmond House, 1 Rumford Place, Liverpool, L3 9RH. Tel. 051 227 6001, ext. 43.

Please quote ref. LP 19206/22 with all applications.

Closing date is 14 days from the appearance of this advertisement.

LONDON

THE POLYTECHNIC

LECTURER/SENIOR LECTURER IN GEOGRAPHY

Applications are invited from suitably qualified persons for an appointment which may be at either Lecturer Grade II or Senior Lecturer level depending on qualifications and experience. Expertise in physical geography is required and candidates should have completed, or be about to complete, a higher degree. The successful applicant will be expected to take up the appointment on 1 September, 1977, or as soon afterwards as possible.

Salary according to the Burnham F.E. Report. Lecturer II £3,591 to £5,805 plus £402 London Allowance plus Pay Supplement of up to £180. Senior Lecturer £5,343 to £6,367 (Bar) £6,720 plus £402 London Allowance plus Pay Supplement £180.

For further details and application forms please apply to Assistant Secretary, City of London Polytechnic, 117-119 Houndsditch, London EC3A 7BU, by June 6, 1977.

ULSTER COLLEGE
THE NORTHERN IRELAND POLYTECHNIC

FACULTY OF THE ARTS

PRINCIPAL LECTURER or SENIOR LECTURER or LECTURER II-Modern British History

This post is located in the School of Philosophy, Po and History. It is desirable that the person appo takes up duty from 1 September 1977.

FACULTY OF TECHNOLOGY

LECTURER II/SENIOR LECTURER-Quantity Surveying

Applications are invited from Chartered Quantity Surveyors or holders of equivalent degree or professional qualifications, to lecture to the fully exempting professional Diploma courses in the primary surveying disciplines. The initial appointment will be within the Lecturer II scale with progress to Senior Lecturer subject to the efficiency requirements.

FACULTY OF EDUCATION

LECTURER II-Education

To contribute to a range of courses at initial and in-service levels, full-time and part-time and including CNAA approved degrees. Applicants should be graduates with appropriate professional qualifications, research interests and relevant experience to contribute to educational disciplines.

FACULTY OF SOCIAL AND HEALTH SCIENCES

LECTURER II-Social Work

Applications are invited from professionally qualified graduates with substantial experience in social work practice and preferably experience in field-work teaching or in-service training. The successful candidate will contribute to teaching on a number of courses and there is scope to adjust specific duties to the individual interests and expertise. In addition it would be an advantage if the person appointed could contribute to the teaching of Social Policy.

Salary Scales:

Principal Lecturer	*£6432-£7134/£8070*
Senior Lecturer:	*£5523-£6447/£6909*
Lecturer II	*£3744-£5985*

There is a scheme of assistance with removal.

Further particulars and application forms which must be returned by June [illegible] may be obtained by telephoning Whiteabbey (0231) 65131, ext. 2243, or by writing to

The Establishment Officer, Ulster College, The Northern Ireland Polytechnic, Shore Road, Newtownabbey, Co Antrim BT37 0QB.

The Hatfield Polytechnic

Principal Lecturer in Social Work

A well qualified and experienced person is required to take a leading part in the development of social work studies in the Polytechnic. The main work of social work teachers is on the Applied Social Studies degree which offers a qualifying course for award of the CQSW and which, in its revised form, offers interesting possibilities for higher level work.

Salary scale: £5,940-£6,642 (bar) to £7,578 per annum plus £150 per annum local weighting and £402 per annum income supplement.

Application form and further particulars may be obtained from the Staffing Office, The Hatfield Polytechnic, PO Box 109, Hatfield, Herts, or telephone Hatfield 66100 ext. 309.

Closing date: 21st June, 1977.
Please quote reference: 874.

Faculty of Business Department of Business Studies

Research Assistant

required by North East London Polytechnic for a project investigating advertising agency performance. The appointment will be for one year.

The person appointed will be responsible for data recording and analysis, participate in interviewing agency personnel and in writing reports, and be consulted on research design. Applicants must have a good Honours degree in one of the Social Sciences and a knowledge of statistical methods. This post could suit a graduate with one or more years in the advertising field.

Salary: £1,932 per annum (plus Government Supplement and appropriate London Allowance).

Further details and application form from: Senior Staffing Officer (2), North East London Polytechnic, Forest Road, London E17 4JB. Telephone: 01-527 2272. Extension 20.

Closing date for completed applications: 10 June, 1977.

NELP North East London Polytechnic

Polytechnics continued

Kingston Polytechnic

HEAD OF LEARNING RESOURCES
Grade VI

to take overall responsibility for the library and educational services throughout the Polytechnic.

Salary £8,514-£9,390 inclusive

Further details and application forms from the Director, Kingston Polytechnic, Penrhyn Road, Kingston upon Thames KT1 2EE. 01-549 1366.

Closing date 13 June, 1977.

LECTURER GRADE II/ SENIOR LECTURER in BUSINESS ORGANIZATION

To teach business organization mainly in the BA Business Studies course and to develop links with local industry for the training of students on sandwich courses. Candidates should be graduates in either economics or human studies and have sound industrial and/or research experience. An interest in the development of industry-based research projects would be an advantage.

Salary: £3279-£5955 (bar)-£6417 plus Supplements of £465 to £402 per annum

Further details and form of application from the Chief Administrative Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU.
Closing date June 10, 1977.

TRENT POLYTECHNIC NOTTINGHAM

CITY OF BIRMINGHAM

THE POLYTECHNIC

DEPARTMENT OF CONSTRUCTION AND SURVEYING

SENIOR LECTURER/LECTURER II: QUANTITY SURVEYING (two posts)

Applicants should be graduates in Quantity Surveying and/or professionally qualified Quantity Surveyors.

Salary: Senior Lecturer: £5,031 to £[illegible] (bar) £6,417, plus £312 supplement, plus 1977 award; Lecturer II: £3,279 to £5,955, plus £312 supplement, plus 1977 award.

Further details and application forms (to be returned by the 10th June, 1977) from: Personnel Officer, City of Birmingham Polytechnic (THES), Room No. [illegible], Perry Barr, Birmingham B42 2SU. Telephone No.: 021-356 6911 ext. 217.

CITY OF LONDON

THE POLYTECHNIC

SCHOOL OF BUSINESS STUDIES

DEPARTMENT OF LAW

TEMPORARY LECTURERS GRADE II

Applications are invited from good honours law graduates for temporary appointments for the period 1 September, 1977, to 31 August, 1978. Candidates should, preferably, hold both appropriate academic and professional qualifications, but suitable applicants with a single qualification will also be considered.

Salary scale, in accordance with the Burnham (FE) Report is as follows: Lecturer Grade II £3,591 to £5,805 plus £402 London Allowance plus up to £180 Pay Supplement.

Further details and application forms may be obtained from the Assistant Secretary, City of London Polytechnic, 117-119 Houndsditch, London EC3A 7BU. The closing date for applications will be June 13, 1977.

CITY OF LONDON

THE POLYTECHNIC

SCHOOL OF BUSINESS STUDIES

DEPARTMENT OF LAW

PRINCIPAL LECTURER in LAW (Two posts)

SENIOR LECTURER in LAW

Applications are invited from good honours law graduates. It is envisaged that one Principal Lecturer may be made responsible for the B.A. (Business Law) course and the other for the Law Society Vocational Year course which will commence in 1978. Applicants for these two posts will be expected to have appropriate qualifications and experience.

Salary scale, in accordance with the Burnham (F.E.) Report, is as follows: Principal Lecturer, £[illegible] to £7,800 plus £402 London Allowance plus £180 Pay Supplement. Senior Lecturer, £5,313 to £6,357 (bar) to £6,720 plus £402 London Allowance plus £180 Pay Supplement.

Further details and application forms may be obtained from the Assistant Secretary, City of London Polytechnic, 117-119 Houndsditch, London EC3A 7BU. The closing date for applications will be June 13, 1977.

MANCHESTER

THE POLYTECHNIC

FACULTY OF COMMUNITY STUDIES

DEPARTMENT OF EDUCATION

RESEARCH ASSISTANT

Required from 1 September for work in connection with the Department's Project on Language Problems amongst West Indian Children in Manchester Primary Schools. Candidates should be graduates and should have strong interest and background in Sociolinguistics with particular reference to the field of Education.

Approximately six hours tutorial work per week will be required and the successful candidate will be encouraged to register for a higher degree.

Salary scale: £[illegible] to £2,973 plus £447 per annum supplement.

For application forms (returnable by 17 June, 1977) please send a self-addressed envelope marked "T.S.217" to the Secretary, Manchester Polytechnic, Lower Ormond Street, Manchester, M15 6BX.

TEESSIDE

THE POLYTECHNIC

DEPARTMENT OF BUSINESS AND PROFESSIONAL STUDIES

Applications are invited for the following posts—

One LECTURER II/SENIOR LECTURER in PUBLIC ADMINISTRATION and ASSOCIATED SUBJECTS.

One LECTURER II/SENIOR LECTURER in ACCOUNTANCY or ACCOUNTANCY with ECONOMICS.

One LECTURER II/SENIOR LECTURER in ECONOMICS and BUSINESS ORGANIZATION.

Salary: Lecturer II/Senior Lecturer £3,711 to £5,523 (efficiency bar) to £6,447 (work bar) to £6,909.

Appointments will be made within the lower part of the scale.

Application forms and further particulars are available from the Staffing Section, Teesside Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 3BA and are returnable within 10 days.

LEICESTER

THE POLYTECHNIC

COMPUTER CENTRE

Applications are invited for the following post:

DOCUMENTATION OFFICER

Salary £[illegible] to £3,292 plus £312 supplement per annum.

A User Support Group post concerned with provision and maintaining user documentation and advisory services.

Further details and application forms [illegible] Leicester LE1 [illegible]

HATFIELD

THE POLYTECHNIC

SCHOOL OF SOCIAL SCIENCES

RESEARCH ASSISTANTS

Ref. [illegible]

[illegible] community [illegible] in Scotland and Canada. Applicants should be graduates in an appropriate social science discipline, preferably with [illegible] interests or knowledge of the cultures concerned.

The appointment will be for a period ending on 31st December, 1978.

Candidates wishing to discuss the possibilities informally are invited to telephone [illegible]

Ref. 865

is a project dealing with labour market behaviour in the Hatfield area of Hertfordshire. Applicants should have a degree in economics with a substantial component of sociology or vice versa.

The appointment will be for a period of two years from 1st September, 1977.

Candidates wishing to enquire about the relevance of their qualifications should telephone [illegible]

Salary scale for both posts £[illegible] to £[illegible] inclusive.

Further particulars and application forms may be obtained from the Staffing Office, The Hatfield Polytechnic, P.O. Box 109, Hatfield, Herts AL10 9AB, or telephone Hatfield 68100, ext. 309.

Closing date 10 June, 1977.

LONDON S.E.18

THAMES POLYTECHNIC

SCHOOL OF SURVEYING AT HAMMERSMITH

DIVISION OF LAND USE AND PLANNING

LECTURER II IN ESTATE MANAGEMENT

Applications are invited from chartered surveyors for this post which includes teaching in valuation. Relevant graduate and/or post-graduate qualifications and membership of professional institutes would be an advantage.

The school offers full-time degrees in Estate Management, Building Surveying and Quantity Surveying and part-time courses up to final examinations level for R.I.C.S. and I.Q.S. examinations.

The work of the School is currently carried out at Vencourt House, King Street, Hammersmith, London, W.6, but in September 1978 will be transferred to Woolwich.

Salary scale: £3,993 to £6,307 gross inclusive plus 1977 Burnham award.

Further particulars and form of application may be obtained from the Staffing Officer, Thames Polytechnic, Wellington Street, London, SE18 6PF, to whom completed applications should be returned by 14 June 1977.

Colleges of Higher Education

Hull College of Higher Education
Cottingham Road
Hull HU6 7RT
Telephone (0482) 41451

The School of Architecture, Building and Civil Engineering,

is seeking applicants to fill a vacancy for a full-time tutor in design in the First year of Architecture at the grade of L.II (salary scale £3,278-£5,493 plus Supplements).

Duties include working together with the tutor in-charge of the year in developing the programme, organising projects and tutoring students in design work. The School is presently developing new directions in alternative technology, community participation and housing rehabilitation. The successful applicant will be encouraged to participate in those and/or initiate new ones.

Application forms and further details can be obtained from Mrs O. Liddell at the above address.

This College is formed from an amalgamation of Colleges of Art Commerce Education Nautical Studies and Technology

CREWE

+ ALSAGER COLLEGE OF HIGHER EDUCATION

HEAD OF DRAMA (PRINCIPAL LECTURESHIP)

Required for September, 1977, or as soon afterwards as possible, a Drama Specialist with wide experience in performance arts appropriate to the on-going B.A. Honours Degree (Combined Studies) Creative Arts (C.N.A.A.).

Application forms and details of post from Clerk to the Governors, Crewe + Alsager College of Higher Education, Crewe Road, Crewe, Cheshire CW1 1DU. Closing date: June 24, 1977.

Slough College of Higher Education

FACULTY OF BUSINESS

Applications are invited for the following full-time appointments within the Faculty. All are tenable from 1 September 1977.

School of Accountancy

SENIOR LECTURER IN ACCOUNTANCY (A/S/4)

Candidates should be qualified members of one of the major professional bodies of accountants. The possession of other academic qualifications, although desirable, is not essential. Teaching experience in, or specialist knowledge of, two or more of the following subjects is essential:

Financial Accounting, Financial Management, Management Accountancy.

School of Business Studies and Law

LECTURER IN BUSINESS ORGANISTION
(BSL/2/4)

Candidates should be graduates and/or be professionally qualified. It is essential that they should have had business experience at a reasonable level of seniority and some teaching experience. Experience in case study methods of teaching and the ability to write case studies would be particularly useful.

LECTURER IN LAW
(BSL/S/10)

Candidates should be graduates and/or hold a professional legal qualification. The successful applicant will be expected to lecture in a range of legal subjects, particularly Jurisprudence and Company Law, up to and including final degree level, although due regard will be taken of any particular specialisation in law.

SALARIES
Senior Lecturer — £5523 pa — £6909 pa + £150 pa London Allowance
Lecturer — (Grade II) £3744 pa — £5985 pa + £150 pa London Allowance

Send SAE for further details and application form (which should be returned by 6 June) to the Vice Principal, Slough College of Higher Education, Wellington Street, Slough SL1 1YG.

Ealing College of Higher Education

LONDON EHE

Appointment of Head of the School of Language Studies
Grade VI (Re-advertisement)

CNAA BA in Applied Languages (F.T.), CNAA postgraduate Diploma courses in Chinese, Contemporary German Studies, English Studies, and Language in the Community, together with all E.F.L. and E.S.L. courses.

Candidates for the above post should possess distinguished academic qualifications, have had significant teaching experience at undergraduate level, have managerial skills of a high order, and ideally current research interests.

Burnham Head of Department salary grades will apply, plus London Allowance of £402 p.a.

EALING TECHNICAL COLLEGE BECOMES PART OF THE NEW EALING COLLEGE OF HIGHER EDUCATION ON 1ST SEPTEMBER, 1977.

Further details of the above post are available from:
The Clerk to the Governing Body (TD MW),
Ealing Technical College,
St. Mary's Road,
London W5 5RF.
Closing date: 15th June, 1977.

Ealing EDUCATION SERVICE

BEDFORDSHIRE EDUCATION SERVICE
BEDFORD COLLEGE of Higher Education

Applications are invited for appointment to the following post as from September, 1977:

School of Art, Drama & Music
TEMPORARY LECTURER I IN TWO-DIMENSIONAL STUDIES AND THEATRE DESIGN

Applications are invited to a temporary one-year Lecturer I post in Two-Dimensional Studies and Theatre Design for the 1977/78 session, to replace a member of staff on secondment who will return at the end of the session.

Applicants should be suitably qualified and experienced to contribute to a range of courses including the BEd. degree and Certificate courses in teacher training and vocational and non-vocational community courses.

Further details and application forms are available from The Director, Bedford College of Higher Education, Cauldwell Street, Bedford MK42 9AH, to be returned not later than 10 June, 1977.

Announcements

Studentship Triennial Review

(1) 1 July, 1977, is the closing date for receipt of forms S1 from departments applying for recognition in the SSRC Studentship Scheme for the 1978/79-1980/81 academic years.
(2) Departments with postgraduate courses or research training programmes currently in the SSRC Studentship Scheme should now have received the appropriate S8 form from their registrars.
(3) Departments offering social science postgraduate training not previously recognised by SSRC for the Studentship Scheme are invited to apply: details are available from John Greig, Postgraduate Training Division, tel: 01-353 5252 Ex 3.
(4) Notification of the results of the review will be made in November, 1977. Courses or training programmes given quota status will be notified of their allocation of awards in March, 1978, for the 1978/79 academic year.
(5) Computing studentships—departments should note that the SSRC Computing Committee will consider applications from departments offering training in a social science area where the aim is to exploit computing techniques in a novel way within the social science discipline. The exploitation and novel application of well-established techniques to problems within a social science area would also be considered. The Committee will be looking for a reasonably close link between the social science department and a computing centre to ensure that students are adequately supervised.
(6) In addition, departments which have ongoing social science research projects may be eligible to apply for a computing studentship linked to that research. Such departments should contact Mike Mood, Computing Committee Secretariat, tel: 01-353 5252 Ex. 87.

SSRC, 1 Temple Avenue
London EC4Y 0BD

SOCIAL SCIENCE RESEARCH COUNCIL

SUBSTANTIAL FUNDS

available for outright purchase or acquisition of significant part of business in Language school, secretarial college, professional training and specialist publication spheres.—Write Box No. [illegible] THES, The Times, W.C.1.

REMINDER

Copy for Classified Advertisements in the THES should arrive not later than 10.30 am Monday preceding the date of publication

Colleges of Higher Education continued

THE QUEEN'S COLLEGE BIRMINGHAM

This ecumenical theological college intends to fill a staff vacancy by appointing from September 1st a LECTURER with responsibility for teaching theology to university standard, particularly the bible and/or doctrine. Additional expertise e.g. in other religions will be an advantage. The Lecturer must be able to share in the guidance of ordinands and their families. Applicants may be of any denomination, though it is likely that an Anglican with some years ordained experience in the 30-45 age range will be appointed. Salary around £2,750 plus accommodation and allowances.

Applications should be received by 10th June, 1977 with the names of three referees. Application forms and further details available from Principal's Secretary, The Queen's College, Somerset Road, Edgbaston, Birmingham, B15 2QH. Telephone No. 021-454 1527.

DERBY LONSDALE COLLEGE OF HIGHER EDUCATION

COLLEGE LIBRARIAN

to be responsible for the continued library services of Bishop Lonsdale College and Derby College of Art and Technology, which have amalgamated to form this new voluntary institution, and to lead the development of a centre of resources for learning.

Salary: Burnham, Head of Department Grade IV £6,756-£7,632 plus supplements.

Further particulars and application forms may be obtained from the Deputy Principal's Secretary, Derby Lonsdale College of Higher Education, Kedleston Road, Derby, DE3 1GB to whom completed forms should be returned as soon as possible.

Derby Lonsdale College of Higher Education

HEAD OF SCHOOL OF SCIENCE

(Head of Department Grade VI)

Further particulars and application forms may be obtained from the Secretary to the Deputy Principal, Derby Lonsdale College of Higher Education, Kedleston Road, Derby DE3 1GB to whom completed forms should be returned as soon as possible.

Colleges of Education continued

BRADFORD COLLEGE

School of Business & Social Studies

LECTURER II
IN MANAGERIAL ECONOMICS

Applications are invited for the above post, duties to commence as soon as possible.

Applicants will be required to hold a degree in Economics or a degree with Economics as a major subject. A research degree and/or teaching experience, and/or commercial and industrial experience will be an added advantage. The salary for this post will be in accordance with the Burnham Scales of Salaries, Lecturer Grade II.

Application forms and further particulars are available from **Staffing Officer, Bradford College, Great Horton Road, Bradford, BD7 1AY.**

And the completed forms should be returned to him not later than **Friday, 10th June, 1977.**

Queen Margaret College

EDINBURGH

PRINCIPAL LIBRARIAN

Applications are invited from men and women graduates with a librarianship qualification and good Library experience for appointment to be in charge of Library Services in the College. A new Library, at present under construction, is due to be opened in January, 1978.

Queen Margaret College, founded in 1875, is a Scottish Central Institution offering courses at Degree and Diploma level. The curriculum of the College includes full-time courses in Dietetics, Drama, Health Visiting, Home Economics, Institutional Management, Nursing, Physiotherapy, Social Work, and Speech Therapy.

Salary: £6,658-£7,536 (bar)—£8,028

Application forms and further particulars from :—
The Secretary, Queen Margaret College
36 Clerwood Terrace, EDINBURGH EH12 8TS
Telephone 031-334 8111

NEWMAN COLLEGE
(R.C. College of Education)
Bartley Green, Birmingham B32 3NT

Applications are invited for the post of

HEAD of THEOLOGY

at Principal Lecturer level. College awards are validated by the University of Birmingham and the successful candidate will be responsible for the organization of every aspect of the subject up to BEd Hons level, both initial and in-service, and for further College developments in the field of theology and religious education.

The appointment will date from September 1, 1977, or, in view of the lateness of this advertisement, a somewhat later date related to the forward commitments of the successful candidate.

Applications (no forms) with a detailed Curriculum Vitae and the names and addresses of three referees should be sent to the Principal as soon as possible at the above address.

Colleges and Institutes of Technology

PAISLEY COLLEGE

HEAD OF DEPARTMENT OF LAND ECONOMICS

(Salary £8,600—revised following new grading structure)

Applications are invited for the above post which will fall vacant in September, 1977, on the retirement of Professor A. T. McIndoe.

The person appointed should have the extensive Academic/Professional experience and qualifications necessary to give Academic and Administrative leadership to a Department working at Degree level.

The Department of Land Economics operates a BSc Degree in Land Economics and extensive research relating to the principal subjects of Valuation, Economics, Law related to Property, Town and Country Planning and Building Technology. Part-time R.I.C.S. Day-Release Courses are also offered.

Further information and application forms from Establishment Section, PAISLEY COLLEGE OF TECHNOLOGY, High Street, Paisley PA1 2BE. (Tel. No. 041-887 1241). Informal enquiries to Professor A. T. McIndoe (Ext. 285). Completed applications, quoting reference THES/20/1 to be returned by 21 June, 1977.

Hereford and Worcester County Council

WORCESTER TECHNICAL COLLEGE

Department of Business Studies

Lecturer Grade II —Accountancy

Applicants are invited for the post of Lecturer Grade II to commence duties on 1st September, 1977. Candidates should have a relevant degree or professional qualification, and should be able to teach up to Higher National Certificate and Final Professional levels.

The ability to assist on Diploma in Management Studies and other Management Courses would be an advantage.

Experience in business and in teaching is preferred.

Salary: £1,744-£5,085 (including supplement).

The closing date for applications will be 10 days after the appearance of this advertisement.

Application forms and further details may be obtained from the Chief Administrative Officer, Worcester Technical College, Deansway, Worcester WR1 2JF.

Librarians

BIRMINGHAM
ASTON UNIVERSITY
UNIVERSITY LIBRARIAN

Applications are invited for the appointment of University Librarian which is vacant due to the retirement of Mr. E. H. B. Driver.

The University Librarian is responsible for the management and the development of all library services required by a large technological university working in close collaboration with industry. The library is housed in a new building completed only in 1975.

Candidates will be required to be graduate professional librarians and to have had a wide experience at senior level in a large library and preferably of a university. Preference will be given to those candidates who have knowledge and experience of modern library management techniques.

The salary will be within the national professional library staff structure within Range IV for which the minimum is £9,106 per annum.

Application forms and further particulars may be obtained from the Staff Officer Ref. No. 194/161, University of Aston in Birmingham, Gosta Green, Birmingham, B4 7ET, to whom applications should be returned not later than 30th June 1977.

Administration

BOLTON INSTITUTE OF TECHNOLOGY

SENIOR ADMINISTRATIVE ASSISTANT (ACADEMIC REGISTRAR) APV

Applications are invited for the above mentioned post from candidates, preferably with a degree or equivalent qualification and/or experience in the F.E./H.E. sector. Major responsibilities of the post include all aspects of the registry (admissions, enrolment, registration, examinations and awards), servicing of the major committees of the Academic Board and acting as a deputy to the Chief Administrative Officer.

Salary Scale APV £3,825-£4,095 plus £312 per annum.

Further details and application form from the Vice-Principal, Bolton Institute of Technology, Deane Road, Bolton, completed applications to be returned not later than Monday, 6th June, 1977.

Colleges of Further Education

PRINCIPAL

Applications are invited for the post of

Principal of the Central School of Speech and Drama

The post becomes vacant on the retirement of the present Principal in 1978.

The School is a national institution, grant-aided by the Inner London Education Authority, and both degree courses and professional training for the stage, drama teaching and speech therapy. Applicants will be expected to have relevant experience in and higher education.

Salary scale:

£8,736-£9,318 p.a.

plus London weighting.

Further details from the Registrar, Central School of Speech and Drama, Embassy Theatre, Eton London NW3 3HY (01-722 8183).

EAST SUSSEX
COUNTY COUNCIL

Reference 77 R

[illegible]

Salary: Lecturer I, [illegible] plus supplement.

Details and application form returnable by first post [illegible] June, 1977, from the Principal, Hastings College of Further Education, Archery Road, St. Leonards-on-Sea. [illegible]

Personal

HOW TO EN
CALCULUS

[illegible]

WANTED

Second-hand [illegible]

Research

Experienced Researche Required

A multi-disciplinary group working on a large estate in Southwark is initiating an exciting month research project into school non-attendance.

Salary up to £4,000 p.a.

Further details and application form from:
Walworth & Aylesbury Community Arts Trust
Office 'A', Charlbridge,
Westmoreland Road, S.E.17. Tel. 01-701

Courses

CUMBRIA

SUMMER PROGRAMME
BUDDHIST MEDITATION SHORT COURSES
also
JUNGIAN PSYCHOANALYSIS COURSE.
MANJUSHRI INSTITUTE
Conishead Priory, Ulverston, Cumbria LA12 9QQ
(0229) [illegible]

SHEFFIELD

A Symposium
NEW PATTERNS IN SCIENCE EDUCATION
to be held at
SHEFFIELD CITY POLYTECHNIC
on
Tuesday, 12th July, 1977

Symposium fee £5.50 (including coffee and tea). Lunch (optional) £1.50.

Further details from: Science Faculty Officer, Sheffield City Polytechnic, Pond Street, Sheffield S1 1WB.

SALFORD

THE UNIVERSITY

PART-TIME M.Sc. COURSE IN URBAN STUDIES

From October, 1977, the existing full-time multi-disciplinary M.Sc. course (by examination and dissertation only) in Urban Studies will be offered on a part-time basis.

Applications are invited from teachers and lecturers, planners and employees in urban management. Details from Mrs. E. Clowes, Department of Economics and Geography, University of Salford, Salford M5 4WT.

Overseas

VACATION ACCOMMODATION

Available 3 months [illegible] RABAT, MOROCCO [illegible] central modern [illegible] views [illegible] DORDOGNE [illegible] mediaeval village [illegible] TUSCAN HILLS [illegible] farmhouse [illegible] only £100 per month [illegible] British Council [illegible]

BRITISH/IRANIAN SCIENTIFIC EXCHANGE SCHEME

To stimulate [illegible] collaboration [illegible] technology [illegible] Education and the [illegible] Council administer [illegible] scheme covering [illegible] science, engineering, [illegible] medicine [illegible] policy/education. [illegible] British visitors [illegible] minimum of [illegible] Iran, where [illegible] participate in research [illegible] studies. Applicants should [illegible] research degree or [illegible] there is no [illegible] on age [illegible] but as [illegible] is an aim of the [illegible] should be [illegible] continue their work [illegible] for some time to come [illegible] September [illegible] between [illegible] and March, 1978 [illegible] For further details [illegible] application form [illegible] or telephone [illegible] Higher Education Department [illegible] Science [illegible] Council, [illegible] British Council, [illegible] Gardens, London [illegible] Tel. 01-930 8466 [illegible]

SWITZERLAND

MATHEMATICS TEACHER [illegible] Secondary level [illegible] American boarding [illegible] teaching [illegible] Mathematics [illegible] experience desirable. Applications including [illegible] and references to the [illegible] The American [illegible] in Switzerland, [illegible] Montagnola, Switzerland.

OVERSEAS TEACHING POSTS

LECTORS IN ENGLISH (YUGOSLAVIA)

Universities of Novi Sad, Belgrade, Ljubljana, Pristina and Sarajevo.

To teach English Language and related subjects to university students of English.

Degree and some experience of TEFL at tertiary level essential; TEFL qualification (minimum PGCE with TEFL element or RSA) desirable.

Salary: A local salary of between 5000 and 6000 New Dinars per month (present rate of exchange £/ND 31). This salary is non-convertible. Additionally an annual subsidy of £1,244 paid by the British Council in the UK.

Benefits: free medical service; employer's portion of superannuation; accommodation allowance. One-year contracts renewable.

77 RU 39, 41-43 & 55

LECTURER IN TEFL (ROMANIA)

The University of Bucharest.

To teach TEFL, Linguistics and methodology to university students and teachers in training.

Degree, one-year post-graduate qualification in TEFL and substantial experience of TEFL, preferably at tertiary level, essential, MA in Linguistics, experience of ESP and teacher training desirable. Preferred age range 30-50.

Salary: A local salary of 4200 Lei per month (present rate of exchange approx £/20 Lei). This salary is non-convertible. Additionally an annual subsidy of between £1666 and £3732 (point on scale dependent on qualifications and experience) paid by the British Council in the UK.

Benefits: free accommodation; overseas medical scheme; employer's portion of superannuation; one-year contract renewable.

77 RU 56

TEACHING ASSISTANT IN ENGLISH (HUNGARY)

University of Szeged.

TEFL qualification, minimum RSA or PGCE with TEFL component, with between two and five years' experience of teaching EFL to adults essential.

Salary: 3800 Forints per month for 10 months of the year (non-convertible) plus an annual subsidy of £1666 paid by the British Council to the Teaching Assistant's UK bank account.

Benefits: free accommodation and medical treatment; employer's portion of superannuation; one-year contract renewable.

77 RU 40

LECTURER IN ENGLISH (CZECHOSLOVAKIA)

Comenius University, Bratislava.

To teach English Language to university students.—

Degree and postgraduate qualification in TEFL (minimum PGCE with TEFL element or RSA) essential.

Experience of TEFL to adults desirable.

Salary: minimum of 2120 Kcs. per month (non-convertible) (present rate of exchange 19.30 Kcs=£1) plus an annual subsidy of £1666 paid by the British Council in the UK.

Benefits: free accommodation and medical treatment; employer's portion of superannuation: one-year contract renewable.

77 RU 44

4 LECTURERS IN ENGLISH LANGUAGE (JORDAN)

Yarmouk University, Irbid.

To teach language and study skills courses to first-year students.

Graduates in English with university TEFL or Linguistics qualification followed by two years' experience.

Salary: £5664 pa. Various allowances will effectively double this salary.

One-year contract renewable.

77 AU 57-60

TEACHER OF SILVICULTURE
TEACHER OF ECOLOGY
TEACHER OF BOTANY
(IRAN)

High School of Natural Resources, Gorgan.

To teach up to BSc level, give practical instruction, set and mark examinations, assist with curriculum development.

Degree postgraduate diploma or preferably MSc in forestry and/or related subjects and at least two years' relevant teaching experience. Men only. Single or married candidates max two children under five.

Salary: £5064-£6160 pa.

Benefits: personal and children's allowances; free furnished accommodation. Two-year contracts.

77 HO 40 42

Return fares are paid. Local contracts are guaranteed by the British Council. Please write, briefly stating qualifications and length of appropriate service quoting relevant reference number and title of post for further information and application form to The British Council (Appointments) 65 Davies Street, London W1Y 2AA.

THE BRITISH COUNCIL

AUSTRALIA

Townsville College of Advanced Education

The Townsville College of Advanced Education, located in Queensland, Australia, is an autonomous tertiary institution with an enrolment in 1977 of [illegible] students offering a three-year pre-service course of [illegible] for primary teachers leading to the award of a Diploma in Teaching; in-service teacher education courses including a Bachelor of Education programme, Graduate Diploma courses in Aboriginal Education and Teacher Librarianship, an In-Service Diploma of Teaching course, and Associate Diploma courses in Community Welfare and Commercial Studies.

In view of a projected expansion of its activities in 1978 the College invites applications for the following positions.

Education Studies

Senior Lecturer in Teacher Development

The successful applicant will be responsible for organising and co-ordinating the teaching practice programme involving 500 students in 25 practising schools, and will also be responsible for the Teacher Development programme; experience with skills-based micro-teaching programme is essential.

Lecturer in Educational Psychology

The successful applicant will be required to conduct courses on learning and teaching in both pre-service and in-service teacher education programmes to diploma and degree level; the emphasis in all courses is on the applications of learning theory in the primary school classroom. Ability to conduct courses in group processes, group dynamics, and human relations would be an advantage.

Lecturer in Sociology of Education

The successful applicant will conduct elective courses in Sociology of Education in pre-service and in-service teacher education programmes. Initially the appointee will be required to work in another area (curriculum and instruction, teacher development, human development) while developing a core course on the school and the social setting of education. An interest in multi-ethnic education would be an advantage.

Tutor/Lecturer in Curriculum and Instruction

The successful applicant will be required to work in two or more areas: curriculum theory and practice in the primary school, instructional strategies, and the skills-based teacher development programme.

Qualifications: A relevant degree, which includes a major component in the appropriate discipline or field (as well as a second and/or higher degree in the case of Lecturer I and Senior Lecturer positions); a satisfactory period of work experience in the appropriate area (in teacher education, teacher experience in primary schools is desirable); and teaching experience in a tertiary institution would be an advantage.

Appointments will be made at the level of Tutor, Lecturer or Senior Lecturer depending on qualifications and experience. Successful applicants will be expected to take up their appointments by September, 1977, or as soon as possible thereafter.

Business Studies

Lecturer in Business Studies

The Business Studies Division currently offers an Associate Diploma in Commercial Studies, which includes majors in Accounting and Commercial Data Processing. The successful applicant will be required to undertake general lecturing duties within the Division, but opportunities will be available to concentrate on areas of special interest. The successful applicant will be encouraged to maintain close contact with the business community and to undertake further study and research.

Qualifications: Applicants should possess appropriate tertiary qualifications, preferably at a postgraduate level, with teaching experience or significant experience in industry, commerce or government. A strong background in either accountancy and/or data processing is essential. Professional qualifications would be an advantage.

Appointment will be made within the Lecturer scale. The successful appointee will be required to commence duties not later than 1 January, 1978.

Salary Range

The following is the current range of salary for each level:

Tutor	$A9,970-$A11,795
Senior Tutor/Lecturer III	$A12,149-$A13,964
Lecturer II	$A14,147-$A16,222
Lecturer I	$A16,811-$A18,886
Senior Lecturer II	$A19,092-$A20,467
Senior Lecturer I	$A20,925-$A22,397

All applications close on 2 July, 1977.

Further information and conditions of employment may be obtained from the Office of the Agent General for Queensland, 392-393 The Strand, London, WC2R 0LZ.

General Vacancies

VACATION EMPLOYMENT

If you are looking for vacation employment in the London and Home Counties [illegible] consider a responsible, interesting and [illegible] job as a full-time Security Officer with Group 4. We can offer a good rate of pay, [illegible] minimum and excellent general conditions of work. You would be doing a worthwhile and valuable job, whilst gaining an insight into industrial and commercial life.

Because we are part of the largest security company in Europe, with a rapid expansion rate, it is quite likely that we have vacancies in your area. If you are interested and are between 21 and 55 years of age and a minimum of 5ft. 6ins. in height, contact Group 4 Total Security at one of the following:—

NORTH LONDON
83 Leicester Road, Luton, Bedfordshire, LU4 8SH
0582 596341

EAST LONDON
Searline House, High Road, Chadwell Heath, Essex.
01-597 2236

SOUTH LONDON
400 Green Road, Mitcham, Surrey, CR4 4HZ.
01-640 4111

WEST LONDON
Hospital Road, Staines Road, Hounslow, Middlesex, TW3 3HU.
01-570 6466.

LONDON

INNER LONDON EDUCATION AUTHORITY

CAREERS OFFICER

Qualified CAREERS OFFICER with high level of interest in employment training and recruitment matters for this special post created to help unemployed young people mainly in Lewisham and Greenwich. The person appointed will have the opportunity to remain in the Inner London Education Authority's Careers Service.

Salary Scale, £4,234—£5,860 (inclusive of £473 London Weighting Allowance).

Details and application forms from the Education Officer (EO/Estab 2A.1), Addington Street Annexe, The County Hall, SE1 7PB. Please enclose a stamped addressed foolscap envelope.

Forms to be returned by June 10, 1977.

Classified Advertisements
To advertise in the TIMES phone John Ladbrook 01-837 1234
THE TIMES
Higher Education
SUPPLEMENT
New Printing House Square,
P.O. Box 7, Gray's Inn Road,
London WC1X 8EZ

The British Council

SCIENTISTS AND ENGINEERS FOR POSTS IN BRITAIN AND OVERSEAS

The British Council, which has a responsibility for Britain's cultural and educational work overseas, will have some vacancies in 1977 requiring experience and qualifications in science, engineering and technology. The Council's work in many countries includes scientific liaison, the administration of programmes of scientific interchange and other activity in science, engineering and technology. In Britain the Council's science and engineering staff service the work overseas, they advise on the placing of overseas trainees on courses in Britain, and they are concerned with the design and implementation of development projects in these subjects, some carried out on a commercial basis and financed by the countries concerned.

We should like to hear from you if you are a graduate in science, engineering or technology, or possess an equivalent professional qualification and have relevant experience.

Appointment may be to the Council's Overseas Career Service, which implies global transferability but may also include an initial posting to Britain, or on contract terms for service either in Britain or in a particular post overseas. Recently, most successful candidates for career appointments have been between 25 and 32 years of age. The initial salary is in the region of £4,900 and terms and conditions of service are in line with those of comparable organisations in the public sector: free accommodation and overseas allowances, including children's education allowances, are provided while overseas.

For further details and an application form, please write or telephone quoting Ref. C13 to Staff Recruitment Department, The British Council, 65 Davies Street, London W1Y 2AA. Tel. 01-499 8011 extension 3041 for particulars and an application form.

Colleges of Further Education

Southwark College
The Cut, London SE1 8LE

Vice-Principals

Applications are invited from both men and women for these posts, vacant from 1 January, 1978, owing to the retirement of Miss G. E. Fletcher and Mr. N. Dark. One appointment will involve special responsibilities for the development of new vocational courses, particularly in social and community work, safety education, and business studies; the other appointment will be chiefly concerned with general education courses at all academic levels. Links with the local community and with employers will concern both. Salary within the upper part of the Burnham (FE) range for Group 6 Vice-Principals: £8,739 to £8,982, plus £180 supplement and £402 Inner London allowance.

ilea *Further details and application forms, returnable by 17 June, 1977, are obtainable from the Senior Administrative Officer at the College (Tel. 01-928 9561).*

The British Council

Curriculum Development
MAURITIUS

Applications are invited for the posts of:

Adviser in Curriculum Development: environmental studies (primary level), Teacher Training College, Beau Bassin, Mauritius.

Adviser in Curriculum Development: mathematics (primary level), Teacher Training College, Beau Bassin, Mauritius.

The British Council has agreed to fill these posts under the Aid to Commonwealth Teaching of Science Scheme. The Teacher Training College is the only primary teacher-training college in Mauritius. In addition to taking part in, and advising on, the work of the college the holders of these posts will also be expected to contribute to the improvement of primary education in Mauritius by advising the Ministry of Education within their specialisms. This will include assisting with in-service courses organised by the Ministry of Education in addition to taking part in the pre-service courses run by the college. The new Institute of Education has provided and is responsible for curriculum development in the school sector; it cooperates closely with the Ministry of Education and the advisers will be involved in this cooperation. The Ministry has plans for the reform of the primary school leaving certificate which includes Mathematics, Geography and English, but in the future will include Environmental Studies and Modern Mathematics.

The successful candidates will have an appropriate degree—although a professionally qualified non-graduate would be considered. Experience of teaching at primary level, organising and taking part in curriculum development at primary level, and experience of teacher training work are essential for these posts. Previous overseas experience and a knowledge of French would be an advantage.

The salary scale is £4,900 to £5,900, and overseas allowances are between £1,400 and £2,900 depending on family circumstances. Free furnished accommodation overseas, paid passages for family and allowances for children's education will be provided.

Appointment will be to the British Council on contract terms, initially for 2 years, with secondment to the Ministry of Education, Mauritius; service may be on secondment from a candidate's present employer.

Selection will be by London interviews and board. Write or telephone, quoting Ref. C13 for further details and an application form, to be returned by 1 July 1977, to Staff Recruitment Department, The British Council, 65 Davies Street, London W1Y 2AA, telephone 01-499 8011 ext. 3041.